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A CROSS-CULTURAL COMMUNICATION AND IRONIC EXPRESSION IN JAI NIMBKAR'S NOVEL OF *COME RAIN*

Dr. Tapashi Mazumdar, *Research Scholar, R.K. Mission Road, Dhubri, Assam*
Prof. Anil B. Swami, *Suman Ramesh Tulsiani Technical, Campus, Kamshet. Tal. Maval, Dist. Pune*

Abstract:

Jai Nimbkar is an Indian multilingual Author of three books first Temporary Answers (1974), second A Joint Venture (1988) and third Come Rain (1993). She is an idealist author. In the present research, a paper researcher has selected Come Rain. The novel is about the two countries America and India and their people and customs. The novel is written in a simple and lucid style. The characters' in novel love as well as a living. This paper is focused on s cross-cultural material relationship and ironic structure expression in the Jai Nimbkar's novel of Come Rain. It is also focused on global relation and culture differences narrated in this novel with various characters. Come Rain novel, it is the irony of lore relation and marriage institution, in a different culture.

Key Words: *Cross-cultural, ironic expression, global relation, culture differences.*

Introduction:

The Story of *Come Rain* is basically a study of a close relationship in the form of marriage. Within the Indian context, marriage is not a contract. It is a relationship section and acknowledges in religion and it is believed to be long-lasting. In this novel Ann and Ravi, these are the protagonist character. Anna and Ravi have married and the couple has come back from America with a plan to settle in Sangampure (India) which is middle size town situated on the confluence of two rivers 'Sara' and 'Kanheri' near the foothills of the Western Ghats. Ann is restless in the new place because the transition is almost violent from her. She is a girl born and brought up in America but she has married an Indian who lives at in Sangampur. Ravi is the son of middle-level industrialist one Mr.Gogte. Ravi is highly educated and he has specialized in Plant Physiology. This is a super specialty.

Marital Relationship (between) in *Come Rain*:

Author of the novel *Come Rain*, Jai Nimbkar has shown her primarily concerned with the issue of relationships. She is interested in finding out why even such important relationships as a marriage also fail and resulting bitterness and separation. Her sharp observation of life in a middle-class Indian family, her ability to capture the subtle nuances of interpersonal relationships and breath life into her characters so that they remain firmly rooted in the social reality around them. If the problem is considered on the background of the Indian culture it becomes a serious concern. She can easily note that the writer is using very stable irony to analyze the marital relationship between her characters in *Come Rain* novel.

Marriage is a Strong Institution in Religion and Culture in India:

Indian has always believed that marriage is a very strong institution in the religious and cultural framework. So far as the story of the relationship between Ravi and Ann is concerned the nature of irony becomes clear. There are several examples of irony used as an expressive technique in *Come Rain.* The following can be considered in the support of the ironic structure of the novel.

Ravi is a Young Indian who unknown about India's Greatness:

At the center of the story we have Ravi, a young Indian, and Ann, Young American girl. For the first 25 years also Ravi has lived in Sangampur (in India). In fact, he is born brought up and educated also in the same little town. However, although his Biological roots are in an Indian town his psychological roots have not reached the Indian soil. In other words, he is an Indian by every possible deference. The story in *Come Rain* makes it clear that Ravi says in section first, in the novel. He says to Ann American Wife, "The trouble is, there's nothing here really worth showing no parks or museums or beautiful buildings. It's nothing like An American City. Darling, if Sangampur wears a copy of an American city, I would find it very boring (in India)." In these lines Ravi shows, he does not like the place, the people and the country (India) itself. His mind is at some other place, outside India. He doesn't love his birth, growth place. In American, where he has gone for only a few years mainly for his educational specialization and in ironically enough these a few years of American experience out of balance his 25 years of Indian life Experience.

Ann is an American Young Lady who well Known's India's:

A similar irony is observable in the case of Ann (American Girl) also. Ann is born, brought up and educated in America however when she marries Ravi, an Indian. She makes a conscious choice of staying in India perhaps forever. In *Come Rain* novel in section seven, Ann says to Usha, "Actually, I had wanted to come to India even before I met Ravi. Not just as a tourist, I wanted to live for a while in a society which is very different from ours. You know (Usha) if you live in a country like the US, you get lulled into believing that there's only one way of life, and that's the American Way. I wanted to get out of that root, to find out what makes other people tick, what their motivations are." These lines show Ann's great attachment to Indian country. She believes that, In India, there is so much to see, so much to learn and so much to understand in Indian and about Indian. She belongs to the different place, religion, language group and an entirely different way of life. However, for her, these are only superficial challenges and difficulties in her new situation in India. The irony becomes clear when we try to understand the psychological responses of two persons Ravi and Ann. Ravi is an Indian, but unable to understand India. Ann is an American lady but well known to Indian's greatness. Here Cross communication and Irony becomes clear.

Inter Caste Marriage and views about Educated Family:

Mohini is Ravi Gogte protagonist hero's sister. She did inter cast marriage with Prem. So far as the marriage of Prem and Mohini, there is a lot of apportioning from educated Gogte family members. There is a lot of anger against it because of it's inter cast nature. The Gogte family may be prosperous and educated but it has not come totally out of its conservative attitude. Therefore, marriage meets a lot of opposition. There are doubts lurking in the minds of the relatives that the marriage will not continue. These are examples known to the Gogte family that marriages even within the caste can break down as the example of Usha suggests. However, it is an interesting example of irony that this particular inter-caste marriage is successful and the loves are prosperous with new opportunities for progress in their life.

Indian Culture, Birth of Child and Responsibility:

It is a common observation in the Indian situation that the birth of the child beings a couple mentally closer. There is also an increased sense of involvement and responsibility. There is a happy sense of contingently if a male child is born. This is what happens in the life of Ravi and Ann. A male child is born. This child is a symbol of responsibilities. But Ravi doesn't want a child, then here birth of child became a cause to a gap between Ann and Ravi marriage life. It is an interesting irony that one and same situation appeals to different people. Ravi is disturbed at the birth of the child and drifts further apart from his wife (Ann)

Mrs. Gogte Changing view about Ann and Her Child:

It is an interesting piece of irony that the mother-in-law (Mrs.Gogte) who did not like the American daughter-in-law begins to be friendly to her when the male child is born. There is the presence of irony

between the two friends Ravi and Shri. Both are educated in the same science of Agriculture. However, Ravi wishes to use his knowledge for people who do not belong to him. Ravi has knowledge but who do not have the will to use his knowledge for his own people in his own land, however in a similar situation, his friend Shri who is living away from his own people in Sangampur. Shri says to Ann in section twenty-seven in *Come Rain novel*, "I have always talked about going back and doing some development work,(in his village, Pawar Wadi) letting the people there benefit from my education". Shri decides to go back to his village Sangampur where his rootlessness as well as rootedness.

Language is neither a Barrier nor a Promoter for as Personal Relationship Concerned:

Cross-cultural communication and irony are observable even in simple decisions and situations for example, 'Marathi' is Ravi's mother tongue but he is unwilling to use it. He would even like to reject it in a fever of English which is not his own language. On the other side, Ann's mother tongue is English but she is not particular about using it as a tool to impress or control people, on the other hand, she would like to adopt a new language Marathi because it will help her to come closer to the people to understand them and to belong to them. The example of the marriage of Prem and Mohini also suggests that language is neither a barrier nor a promoter as far as personal relationships are concerned.

Mrs. Gogate's Contrast View about Ann (American Lady):

The best and the most impressive example is available in the case of Mrs. Gogt. This conservative mother is afraid that an American girl as a daughter-in-law will not be able to adjust herself to the Indian, atmosphere. Mrs. Gogte has even a greater fear that the American girl will break the family and take the eldest son away from the family. It is very ironical that the son has no respect for the sentiments of the mother, mother tongue and for his motherland also. He easily gives all of them up, on the contrary, the American daughter to bring the family together to go closer to the family and to belong to the entire situation.

Conclusion:

Thus, the novel *Come Rain* it is full of the several ironical example and incidents. A few another example of irony can easily be identified in the novel. All of them go to prove that the solution to problems can come through patience, perseverance, and sympathy. The use of irony on several levels adds interesting attention to the story. Ms. Jai Nimbkar's Novel of *Come Rain* indicated a Cross-Cultural Material Relationship and Ironic Structure Expression in her novel.

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growth and development.

Thus, it also reflects the symbolic meaning and the Saga of Indians Search for Scientific Self Sufficiency and Technological Competence in Dr. A.P.J Kalam's Autobiography 'Wings of Fire'. Dr.APJ Kalam had made his contribution and has complete faith in the talent, intention, and integrity of his collogues. It is this sense of connection that makes him conclude the autobiography with the following expression. 'I earnestly hope and pray that the development resulting from these two plans first Self-Reliance Mission and Second Technology 'Vision 2020' will eventually make out country strong and prosperous, the developed nation'. These words are showing great confidence, optimistic and vision. They come in a time when India is consciously struggling to rise to its full towering height. These work, Let me turn to emotions form responsibility.

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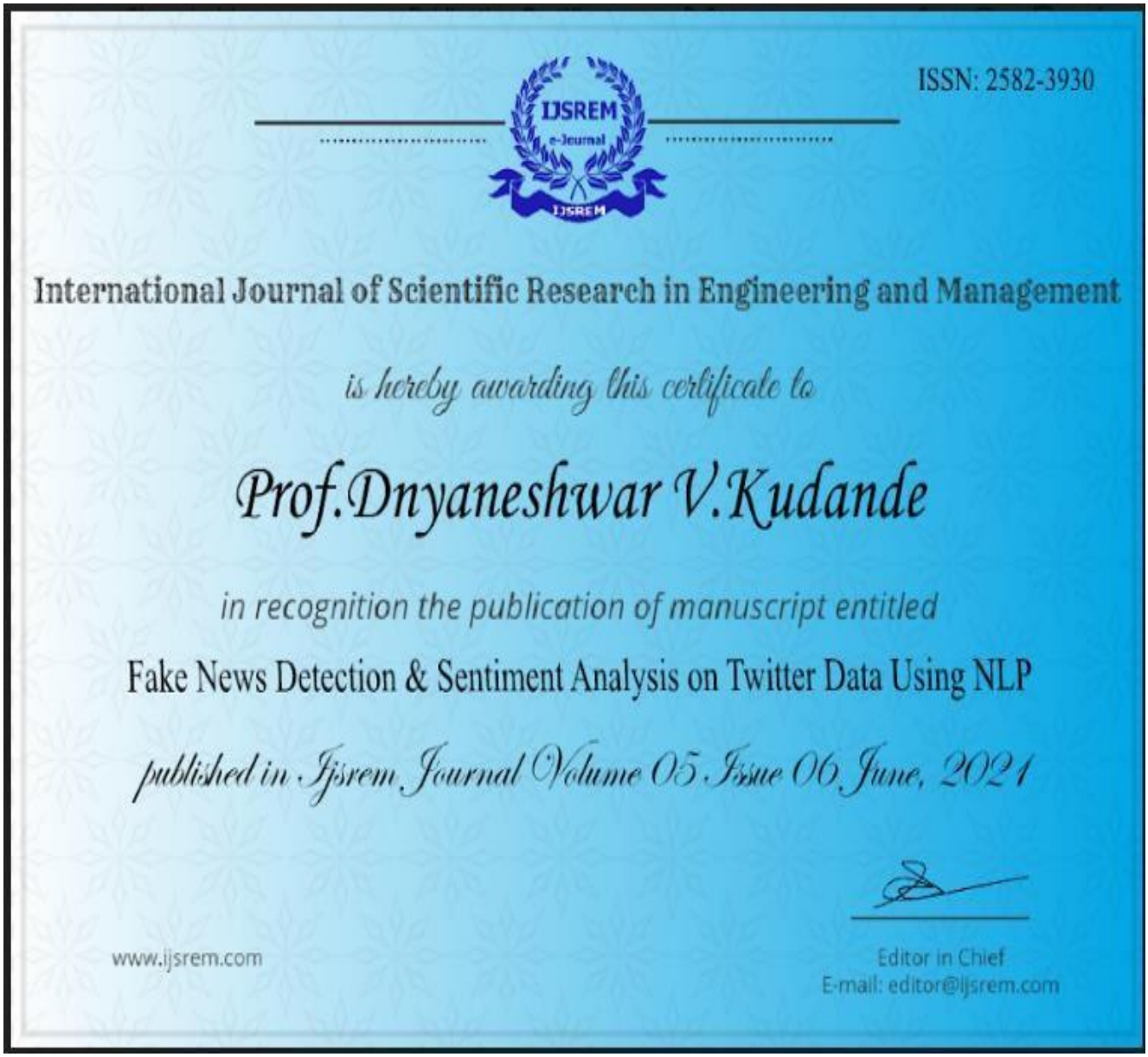
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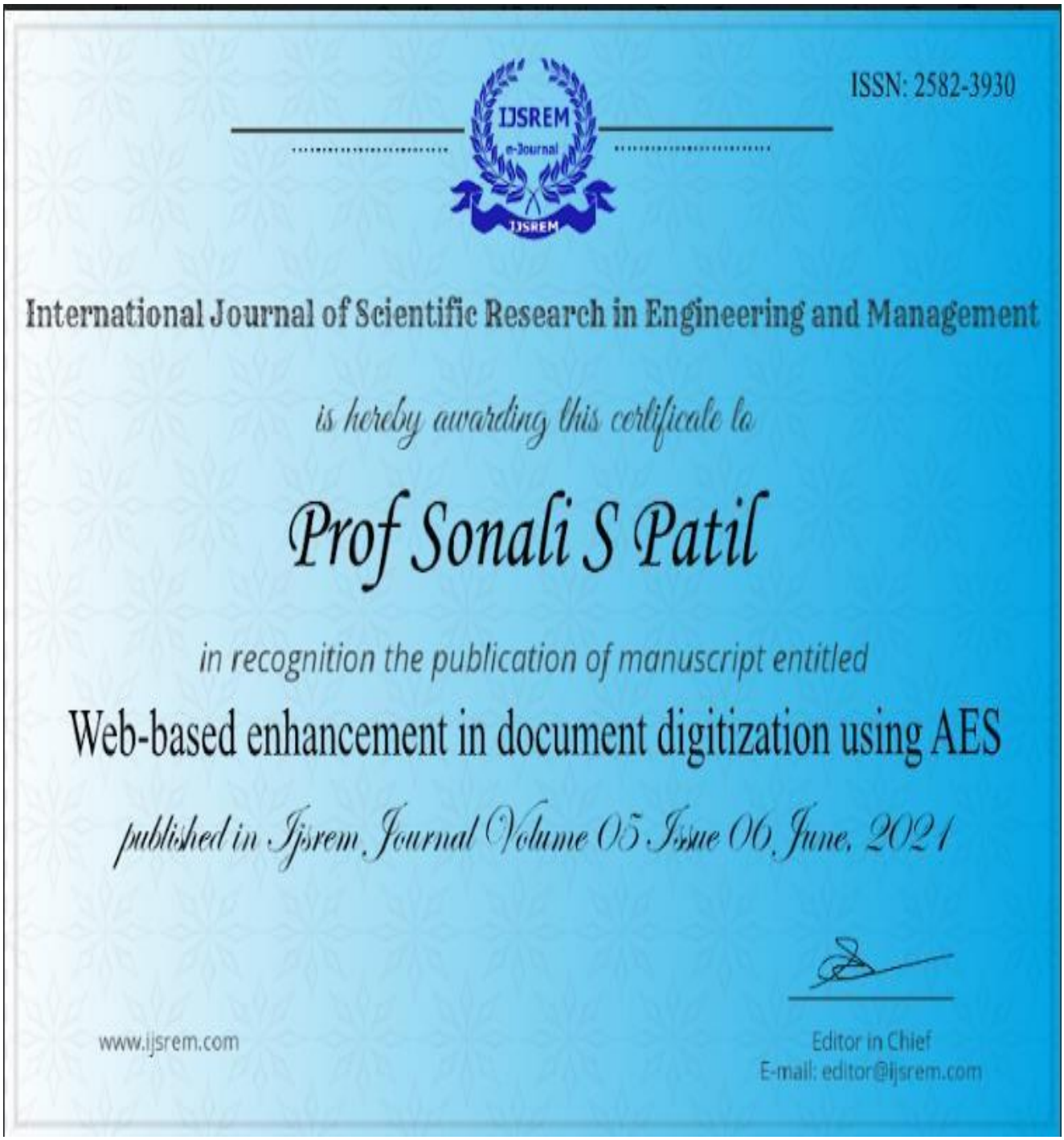
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STATISTICAL DATA ANALYSIS USING MACHINE LEARNING CLASSIFIERS TO DEVELOP A PREDICTION MODEL FOR DIABETES PATIENTS

Shweta Kamble[1], Abhishek Devkhile[2], Pooja Phule[3] , Prof. Dnyaneshwar Kudande[4]

[1]Dept. of Computer Engineering, SRTTC-FOE, Pune, Maharashtra, India
[2]Dept. of Computer Engineering, SRTTC-FOE, Pune, Maharashtra, India
[3]Dept. of Computer Engineering, SRTTC-FOE, Pune, Maharashtra, India
[4]Dept. of Computer Engineering, SRTTC-FOE, Pune, Maharashtra, India

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Abstract - Diabetes is a chronic condition that has the potential to wreak havoc on the global health-care system. According to the International Diabetes Federation, 382 million people worldwide suffer with diabetes. By 2035, this number will have risen to 592 million. Diabetes mellitus, or just diabetes, is a disease caused by a rise in blood glucose levels. Diagnosing diabetes can be done using a variety of traditional approaches based on physical and chemical tests. However, because of the complicated interdependence of different elements and the fact that diabetes affects human organs such as the kidney, eye, heart, nerves, and foot, early diabetes prediction is a difficult assignment for medical practitioners. Other scientific domains could benefit from data science methodologies. One of these responsibilities is to assist in the prediction of medical data. Machine learning is a new discipline of data science that studies how machines learn from their past experiences. The goal of this project is to create a system that can predict diabetes in a patient earlier and with more accuracy by merging the findings of various machine learning approaches. The goal of this research is to predict diabetes using supervised machine learning algorithms such as SVM, Logistic regression.

Key Words: Diabetes Prediction, Machine Learning, Deep Learning, Statistical Analysis, Data Visualization, Prediction Model

1. INTRODUCTION

Sugar and fat are abundant in most people's everyday diets. Diabetes risk has increased globally as a result of these variables. As a result, many people visit health centers to have blood tests done. However, many of them may not have even the tiniest chance of developing diabetes. These tests consume a significant amount of time and money from health-care organizations and individuals each year. There are studies underway to develop novel methods for diagnosing diabetes more quickly and cheaply, avoiding the need for blood testing in those who have a low risk of developing diabetes.

In medical prediction, machine learning techniques are commonly used. The learning algorithms employ previously recorded datasets of patient information to create a model, which is then used with data from an unknown patient to predict whether or not the patient has the targeted condition.

The goal of this research is to create a more accurate diabetes prediction classifier. As a result, we employ machine and deep learning algorithms to increase prediction system performance in terms of time, cost, and accuracy.

2. LITERATURE SURVEY

1. Prediction of Diabetes Using a Combination of Machine Learning Classifiers

Diabetes, often known as chronic sickness, is a collection of metabolic illnesses caused by a persistently high blood sugar level. If exact early prediction is achievable, the risk factor and severity of diabetes can be considerably decreased. In this literature, we are proposing a robust framework for diabetes prediction where the outlier rejection, filling the missing values, data standardization, feature selection, K-fold cross-validation, and different Machine Learning (ML) classifiers (k-nearest Neighbour, Decision Trees, Random Forest, AdaBoost, Naive Bayes, and XGBoost) and Multilayer Perceptron (MLP) were employed.

2. Classification of Diabetes using Deep Learning

Deep Learning (DL) is a research area that has different kinds of activation functions and their efficiency is flourished significantly in recent years and has shown remarkable reported by comparative analysis. Potential for artificial intelligence in the field of medical applications. The rest of paper is illustrated in respective manner: We have implemented the DL algorithm for the diabetes basics and background of deep learning techniques is declassification. This paper applied the Multi-Layer Feed Forward Neural Networks (MLFNN) for the diabetes classification.

3. Deep Belief Neural Network Model for Prediction of Diabetes Mellitus

Diabetes Mellitus is metabolic chronic disease in which blood glucose levels are too high. In India nearly 8.7% of population suffers from diabetes in age range from 20 to 70. Unidentified and untreated diabetes leads to so many health difficulties such as damage of heart, kidneys, eyes, nerves and blood vessels. There are already several methods exists to support clinical decision making but still need improvements to solve the issues and challenges.

4. A Decision Support System for Diabetes Prediction Using Machine Learning and Deep Learning Techniques

With the continuing increase in the number of the deadly diseases that threaten both human health and life, medical Decision Support Systems (DSS) continue to prove their effectiveness in providing physicians and other healthcare professionals with support in clinical decision making. Among these dangerous diseases, diabetes continues to be one of the leading one that has caused several deaths in the world. It is characterized by an increase in blood sugar levels which can have severe effects on other human organs.

3. PROPOSED SYSTEM

In many real-world problems, classification is a critical decision-making tool. The primary goal of this project is to increase classification accuracy by classifying data as diabetes or non-diabetic. The greater the number of samples used in a classification task, the lower the classification accuracy. In many circumstances, the algorithm's performance is excellent in terms of speed, but the accuracy of data classification is poor. Our model's primary goal is to attain great accuracy. If we employ a large portion of the data set for training and only a small portion for testing, we can improve classification accuracy. This study looked into a variety of classification approaches for diabetic and non-diabetic data. As a result, approaches like Support Vector Machine, Logistic Regression, and Artificial Neural Network are shown to be the best appropriate for creating the Diabetes prediction system.

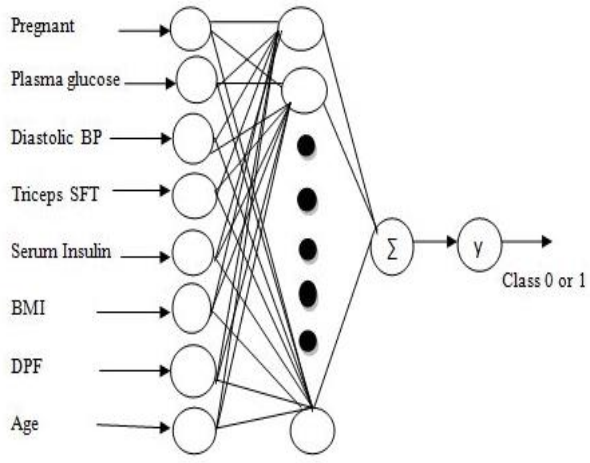


Fig -1: System Architecture

4. METHODOLOGIES

[1] Machine Learning: Machine learning is a branch of artificial intelligence (AI) that allows computers to learn and improve on their own without having to be explicitly programmed. Machine learning is concerned with the creation of computer programmes that can access data and learn on their own. The learning process starts with observations or data, such as examples, direct experience, or instruction, so that we can seek for patterns in data and make better decisions in the future based on the examples we provide. The fundamental goal is for computers to learn on their own, without the need for human involvement, and to change their behaviour accordingly.

Machine learning algorithms are often categorized as supervised or unsupervised.

a. Supervised machine learning algorithms can use labelled examples to apply what they've learned in the past to fresh data and predict future events. The learning algorithm creates an inferred function to generate predictions about the output values based on the examination of a known training dataset. After enough training, the system can provide targets for any new input. The learning algorithm can also compare its output to the correct, intended output and detect faults, allowing the model to be modified as needed.

b. Unsupervised machine learning techniques, on the other hand, are utilised when the data being trained is neither classed nor labelled. Unsupervised learning investigates how computers might infer a function from unlabeled data to describe a hidden structure. The system does not determine the correct output, but it examines the data and can infer hidden structures from unlabeled data using datasets.

c. Reinforcement machine learning algorithms are a type of learning algorithm that interacts with its surroundings by generating actions and detecting failures or rewards. The most important elements of reinforcement learning are trial and error search and delayed reward. This technology enables machines and software agents to automatically select the best behaviour in a given situation in order to improve their efficiency. For the agent to learn which action is better, simple reward feedback is required; this is known as the reinforcement signal.

[2] Classification: Classification is a supervised learning strategy in machine learning and statistics in which a computer programme learns from the data input supplied to it and then applies that learning to classify fresh observations. This data set could be bi-class (for example, determining whether the person is male or female or whether the mail is spam or non-spam) or it could be multi-class too. Some examples of classification problems are: speech recognition, handwriting recognition, bio metric identification, document classification etc. Here we have the types of classification algorithms in Machine Learning: Linear Classifiers: Logistic Regression, Naive Bayes Classifier, Nearest Neighbour, Support Vector Machines, Decision Trees, Boosted Trees, Random Forest, Neural Networks.

[3] Logistic Regression: Under the Supervised Learning approach, one of the most prominent Machine Learning algorithms is logistic regression. It's a method for predicting a categorical dependent variable from a set of independent variables. A categorical dependent variable's output is predicted using logistic regression. As a result, the result must be a discrete or categorical value. It might be Yes or No, 0 or 1, true or false, and so on.

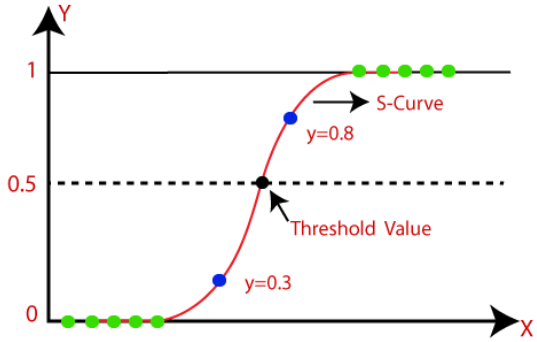


Fig -2: Logistic Regression

[4] Naïve Bayes: It's a classification method based on Bayes' Theorem with the assumption of predictor independence. A Naive Bayes classifier, in simple terms, posits that the existence of one feature in a class is unrelated to the presence of any other feature. For example, if a fruit is red, round, and roughly 3 inches in diameter, it is termed an apple. Even if these features are reliant on one another or on the presence of other features, they all add to the probability that this fruit is an apple, which is why it is called 'Naive'. The Naive Bayes model is simple to construct and is especially good for huge data sets. Naive Bayes is known to outperform even the most advanced classification systems due to its simplicity. Bayes theorem provides a way of calculating posterior probability P (c|x) from P(c), P(x) and P (x|c). Look at the equation below:

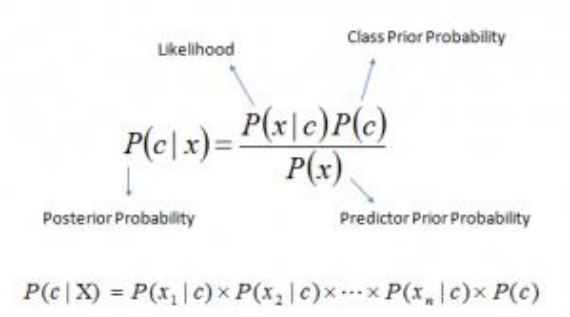


Fig -3: Naïve Bayes Formula

Above,

- P(c|x) is the posterior probability of class (c, target) given predictor (x, attributes).
- P(c) is the prior probability of class.
- P(x|c) is the likelihood which is the probability of predictor given class.
- P(x) is the prior probability of predictor.

[5] Support Vector Machine: SVM (Support Vector Machine) is a supervised machine learning technique that may be used to solve both classification and regression problems. It is, however, mostly employed to solve classification problems. The value of each feature is the value of a particular coordinate in this technique, which plots each data item as a point in n-dimensional space (where n is the number of features you have). Then, we perform classification by finding the hyper-plane that differentiate the two classes very well (look at the below snapshot).

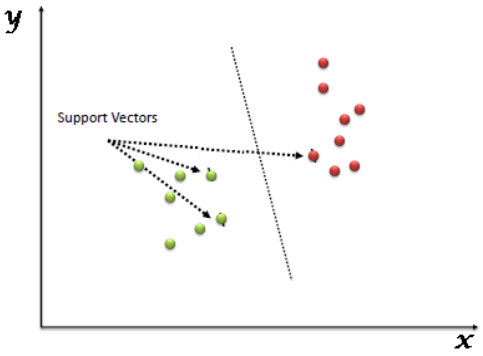
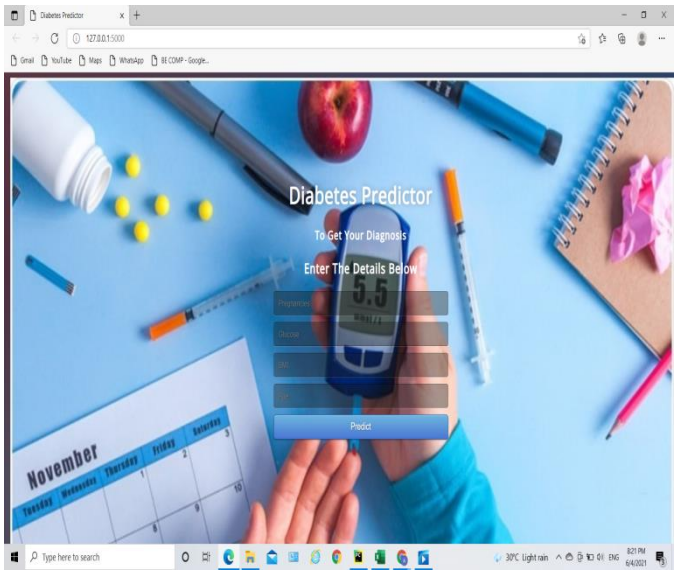


Fig -4: Support Vector Machine

Support Vectors are simply the co-ordinates of individual observation. Support Vector Machine is a frontier which best segregates the two classes (hyper-plane/ line).

5. RESULT AND DISCUSSION

In the proposed system, the novel approach is presented for diabetes classification using power of machine learning techniques. As diabetes is a chronic disease with the potential to cause a worldwide health care crisis, it's very important to address this disease with proper measures. We have implemented web based system for diabetes classification using Python along with Flask framework. We have created simple user interface so that anyone can use it and make benefit out of this. User need to add basic details and our system will predict the result in just few seconds with simple popup message.



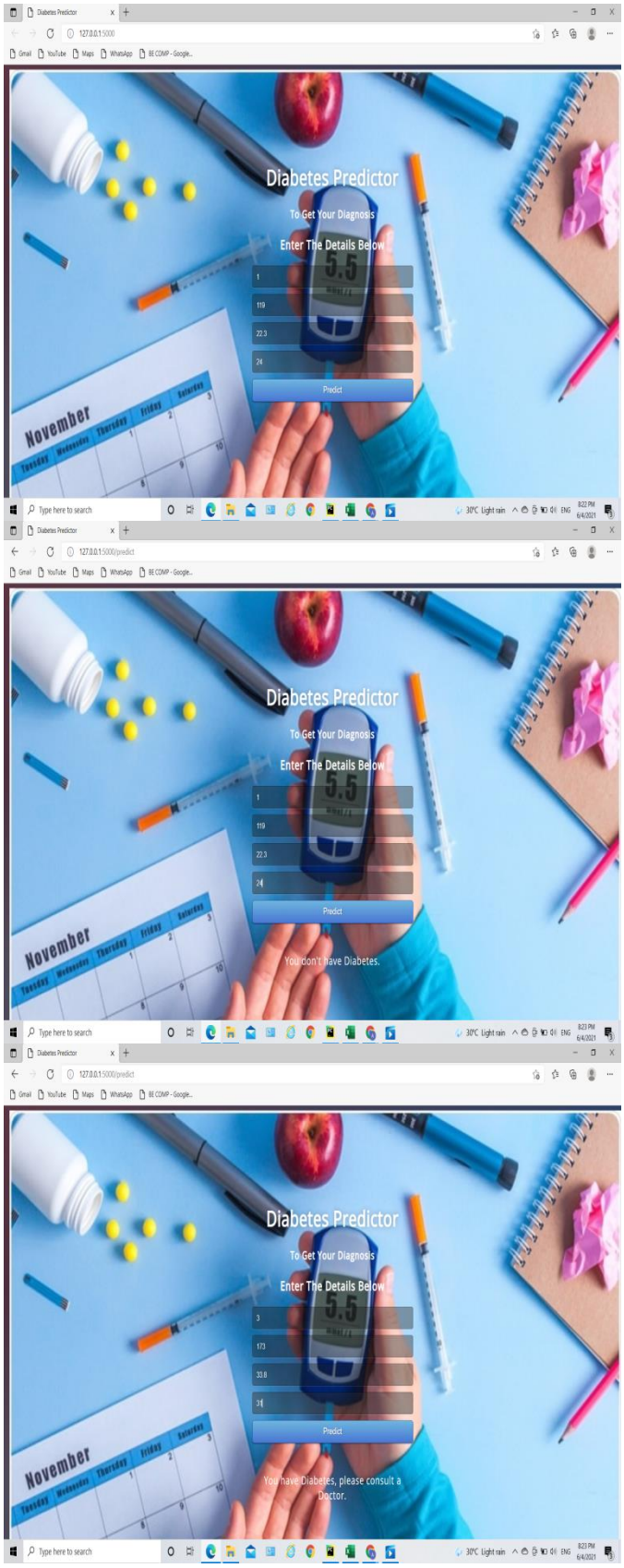


Fig -4: Results

Comparative results of existing and proposed system is as follow,

Table -1: Comparative Results

Parameters	**Existing System**	**Proposed System**
Diabetes classification using web system	No	Yes
Accuracy	70-80	90+
Time efficient	No	Yes
Dataset Support	No	Yes
Cost	More	Less

With reference to Table-1 it is clear that we overcome various problems in existing system and our approach works efficiently.

6. CONCLUSIONS

Diabetes is the most common disease in the world. In our study, we compare several algorithms with different pre-processing techniques and identify algorithms best performance in which pre-processing technique. We found many of machine learning will give us best accuracy than any other methods. In future we will apply more advanced tricks in Neural Network, such as more hidden layers, algorithm optimization would be more accurate in this case.

ACKNOWLEDGEMENT

I wish to express my profound thanks to all who helped us directly or indirectly in making this paper. Finally I wish to thank to all our friends and well-wishers who supported us in completing this paper successfully. I am especially grateful to our guide Prof. Dnyaneshwar V. Kudande for his time to time, very much needed, and valuable guidance. Without the full support and cheerful encouragement of my guide, the paper would not have been completed on time.

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Fake News Detection & Sentiment Analysis on Twitter Data Using NLP

Prof .Dnyaneshwar Kudande[1], Pooja Dolai[2], Akansha Hole[3]

[1]Assistant Professor, Dept. of Computer Engineering, SRTTC FOE, MH, India
[2]Student, Dept. of Computer Engineering, SRTTC FOE, MH, India
[3] Student, Dept. of Computer Engineering, SRTTC FOE, MH, India
(Savitribai Phule Pune University)

Abstract **-** *Messages posted to online social networks (OSN) causes a recent stir because of the intended spread of faux news or rumor. This work aims to know and analyses the characteristics of faux news especially in reference to sentiments, for the automated detection of faux news and rumors. supported empirical observations, we propose a theory that there exists a relation between fake messages or rumors and sentiments of the texts posted online. We verify our theory by comparing with the state-of-the-art baseline text-only fake news detection methods that don't consider sentiments. We performed assessments on standard Twitter fake news dataset and show good improvements in detecting fake news or rumor posts*

Key Words: Fake News Detection, Machine Learning ,Natural Language Processing ,Sentiment Analysis ,Twitter Data.

1.INTRODUCTION

Social media has replaced the traditional media and become one among the main platforms for spreading news , The reasons for this replacement are due to: i) less expensive to get news from social media; and ii) easier to share, comment and discuss with other readers on social media. According to a survey conducted by [1], 62% of U.S. adults consume news on social media while in 2012, only 49% of consumers get news from social media. As there is a significant increase in social media users, news on social media tends to travel faster and easier than traditional news sources. However, not all the news disseminated on social media are accurate and some of them came from the unverified source.

A huge amount of contents shared by people make up various public opinions which sometimes greatly influence a way of thinking of the people in the society even though they are distorted information from fake news created on purpose with wrong commercial and political intent. Therefore, fake news detection becomes very important and challenging issue recently with the fast advancement of various media and communication technology. In this paper, we are concerned with a fake detection model for finding the truth of the question from a Korean article using sentence matching based on key sentence retrieval. Sentence matching is a fundamental technique of the natural language processing(NLP) which checks whether two sentences are similar or not semantically. Recently, deep learning research has been activated by the advance of hardware such as graphics processing unit. NLP techniques based on deep learning have been developed through various attempts for sentence matching.

2. LITERATURE REVIEW

The author embraced information mining measure approach and focussed on the periods of information understanding pre-processing/transformation, information displaying and assessment. For information understanding, they firstly analysed the fake news net storehouse that just have 4 attributes which are id, URL, Title, and tweet_ids (for example a rundown of tweet ids of tweets sharing the news what isolated by tabs).[1] All these four qualities can be gotten coordinated from a Tweet's properties utilizing pertinent Twitter API for information slithering. The author further crept more credits from Twitter as we think about the dataset can be improved by removing more ascribes related to the tweet ids and add them into the joined dataset. A few attributes that can be recovered are a complete check of tweet_ids, all out top choice (t_fav) tally of the tweet_ids, and aggregate retweet (t_retweet) of the tweet_ids. During the pre- preparing and change measure, we built up an upgraded the dataset to catch Tweets' credits[1]Proposed Framework :- In this proposed system, they are

developing the current writing by presenting troupe procedures with different semantic capabilities to order news stories from various areas as true or fake ensemble strategies alongside Linguistic Inquiry and Word Count (LIWC) highlight set utilized in this examination are the oddity of our proposed approach.[2]Algorithms :- Author used the following learning algorithms in conjunction with our proposed methodology to evaluate the performance of fake news detection classifiers.[2].Algorithms as follow :Logistics Regression ,Support Vector Machine, Multilayer Perceptron ,K-Nearest Neighbors.[2]Due to the multi-dimensional nature of fake news, the recognizing the classification of information isn't so natural. Clearly a practical method should contain a couple of viewpoints to correctly deal with the issue. This is the explanation the proposed methodology is a mixture of Naïve Bayes classifier, Support Vector Machines, and semantic examination. The proposed technique is totally made out of Artificial Intelligence moves close, which is essential to accurately arrange between the veritable or the fake, as opposed to using estimations that can't reflect abstract limits. The three-segment technique is a mix between Machine Learning figurings that partition into managed learning methodology, and the characteristic language preparing Techniques.[3]Framework FEATURE 1 – NEWS GATHERING The author assembled random news on different articles with various subjects to prepare our model. By considering these, System distinguishes news goal utilizing AI calculation. Pre Labeled news are utilized to prepare our models. The Accurate and Best performing model is chosen for our forecasts. The pre marked information that we gathered is structure a reliable resource like Kaggle. [4]Framework FEATURE 2 - COMPLEX NEWS HANDLING Framework will examine complex news which can be hard for customary model. Following advances are needed for dealing with of the mind boggling news, which are as per the following Tokenising, padding, encoding, Embedding grid development, Model Formation, Model Training lastly foreseeing the model.[4]The proposed system comprises of four significant advances: data assortment, data pre processing,order and analysis of results. We first take key expressions of the news occasion as an information that the individual need to validate. After that live information is gathered from twitter streaming api. The filtered information is put away in the data set (mongo db).[5] The information preprocessing unit is answerable for setting up an information for additional handling. Arrangement will be founded on different news highlights, twitter surveys like Sentiment Score, Number of Tweets ,Number of devotees ,Number of hashtags ,is confirmed User ,Number of retweets and NLP methods. We are going to describe fake news detection method based on one artificial intelligence algorithm –Naïve Bayes .[5]Classifier Sentiment Score will be determined utilizing Text Vectorization calculation and NLTK(Natural Language Tool compartment). By doing the assessment of impacts obtained from arrangement and examination, we can choose the portion of news being fake or real. [6]Using the above-mentioned algorithms, i.e. Naïve Bayes Classifier, Support Vector Machine and Logistic Regression, The following accuracy has been attained.[6]The maximum accuracy of 83 percent on the given training Set was attained by using Naïve Bayes classifier with lidstone Smoothing. Whereas in the previous models which consisted Of only Naïve Bayes (without lidstone smoothing) attained an Accuracy of 74 percent [6]Overview of our method :- High performing NLI models are independently trained and composite with a fine-tuned BERT model to determine soft labels, which are then used to fine-tune the original NLI models, BERT, and the Decomposable [7]Attention model. These are then compoand combined with predictions made via observing transitivity relations. After the text edit has been completed, the paper is up for it.

3. METHODOLOGY

The basic idea of our project is to build a model that can predict the likely of real time news events.
As shown in Fig. 1,
The proposed framework comprise of four major steps: Data collection, Data preprocessing, Classification and Analysis of results.

3.1 EXISTING SYSTEM

In Existing System, to analyses the behavior of news required maximum resources. To analyze the fake news, we required man power to deep down into it and check the authentication of news. We have to check all possible connection with news manually. It is time consuming and costly approach. Limitation of existing system:-

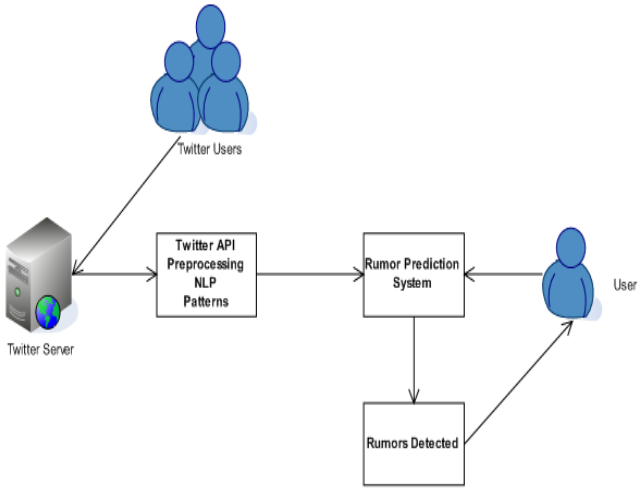

Figure no:-1

3.2 PROPOSED SYSTEM

In the proposed system, we will fetch tweets from twitter using twitter API based on the query. The collected tweets will be subjected to pre-processing. We will then apply the different patterns and strategic algorithms including some of machine learning algorithms for NLP to supervise the data. The results of the algorithms i.e. the sentiment and influence will be signified in graphical manner (pie charts/bar charts). The proposed system is more essential than the existing one. This is because we will be able to know how the statistics resolved from the representation of the result can have an impact in a particular field as well as influence of negativity spread by rumors.

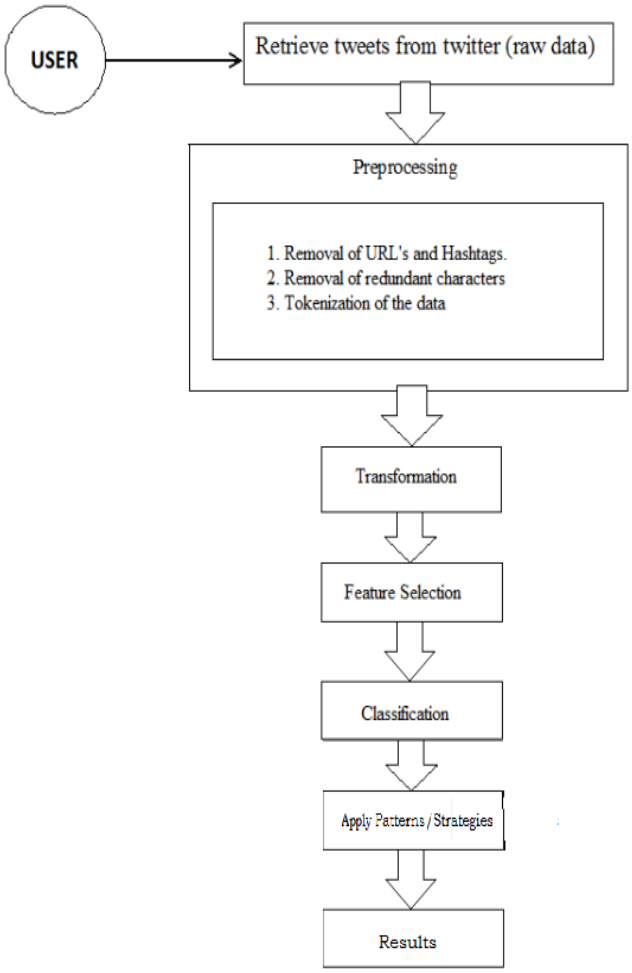

Figure no :-2 Figure no 2 represents the methodology for proposed system.

4.DISCUSSION

In proposed system we have created one web based application using Python's Flask framework which is light weight. In proposed application we are fetching real time tweets from twitter data and applying algorithm on them to get result out of that. To access data from twitter, you need to have authenticate twitter developer account which allows you to access the data. After accessing the data we are also storing that data into SQL database. Then we applied algorithms on that data. For sentiment analysis, we are using text blob and NLTK libraries. And for fake news detection, we have used TFIDF algorithm. It's taking approximately two to five minutes for execution.

5.CONCLUSION

The project embark to solve a real problem of sentiment analysis and genuinely check of Twitter posts. We proposed a technique using knowledge base patterns, strategies and machine learning approaches. These techniques are proposed to increase the perfection of sentiment check for tweets. Patterns can be used to assess if the tweets was a influenced rumor or a original post by any user. By using API of twitter it is feasible to work on live tweets than to work on offline data. Querying and appealing of specific tweets from twitter is possible by using its API. Finding influence or hostility spread by users can be useful in various analytical tasks.

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SMART IRRIGATION ROBOT

Prof. (Mrs.) Anjali More 1, Darshan Gaikwad 2, Hritik Potawade 3, Kalpesh Dere 4, Siddharth Wandre 5

1 Assistant Prof. Dept. of Computer Engineering, SRTTC FOE, MH, India

2 Student, Dept. of Computer Engineering, SRTTC FOE, MH, India

3 Student, Dept. of Computer Engineering, SRTTC FOE, MH, India

4Student, Dept. of Computer Engineering, SRTTC FOE, MH, India

5 Student, Dept. of Computer Engineering, SRTTC FOE, MH, India

(Savitribai Phule Pune University)

Abstract –

Nowadays, an optimized irrigation system has become a need due to the lack of the world water resource. Unplanned use of water basically leads to wastage of water. So, conveyance of automation within the farming system is the most important need for the present & future era. The shortcomings of the manual agriculture system are often corrected by exploiting the automated method that results in higher production of crops. The system has a wireless network of soilmoisture, temperature and humidity sensors. This project is about smart irrigation system which is cost effective. As the technology is growing and changing so fast. DC motor based wireless vehicle is designed for irrigation purpose. The objectives of this paper were to control the water supply to each plant depending on values of temperature and soil moisture sensors. This proposed system is incredibly helpful in Farms, gardens, home etc.

KEYWORDS Agriculture, Internet of Things, Wireless Network, Automated system, Smart irrigation.

1. INTRODUCTION

In India, water resource is in severe shortage and agricultural water consumption accounts for about 80% of the total water consumption. Because of the outdated agriculture irrigation method, the coefficient of irrigation water for effective utilization is only 0.3-0.4 or so. One most important way to improve the utilization rate of irrigation water is to implement precise controlled information based on previous water crop demand data. To keep our agricultural land good, we need an irrigation system which is the method of watering our agricultural field. As there is an increase in scarcity of water, we tend to upgrade our technology and also many various techniques for proper use of water for crops. The soil is that the most vital medium for plant growth. However, many different parameters as well as soil moisture, PH of soil, temperature, and wetness varies from region to region. Testing of the soil provides valuable info about the soil which might be useful to optimize plant growth.

There are many unique types of techniques for irrigating farm fields for various types of crop fields. Channel system is a method of irrigation. But a smart irrigation system is a new technology to properly irrigating farm fields. Smart irrigation scheduling consistently has shown to be valuable in water use efficiency concerning manual irrigation based on direct soil water measurements. The implementation aims to demonstrate that smart irrigation can be used to prevent water wastage. This smart irrigation system that consists of a distributed wireless network of soil moisture and temperature sensor. The main purpose of this project is to save water and to increase the production of crops by monitoring plants. To maximize utilization of available water.

The conventional smart irrigation system is fully controlled and monitored by the farmer. This project presents a fully smart irrigation system that is controlled and monitored by using Arduino Uno and node MCU.

2. LITERATURE SURVEY

In [4], the authors have provided us with a review of the prevailing solar-powered smart irrigation system. The authors have introduced a way during which they did irrigation through solar power. The idea has been incontestable. They generated energy from PV panels for the irrigation system. Although, this method uses renewable energy however it had some drawbacks like its initial price which were too high and it used a great amount of space. They have given the design of their project and enforced selections through period knowledge. It also had some drawbacks like high maintenance prices and difficulty in installation.

Authors in [6, 7], introduced an improved IoT Based automated irrigation system. Many alternative works that have bestowed many styles for the development of sensible irrigation system however as our work is additionally inclined towards sensible irrigation therefore, we've got developed a automation that may be affected into the most space of the sector for irrigation and it'll capture the condition of crops through high element camera. In recent years, researchers have tried their best to ascertain a system that would be renewable and would simply irrigate the most quantity of space at a time however they need not achieved 100 accuracies.

In [8, 9], the authors have developed an algorithm which is successful that extracts the distribution of covered temperature. The main advantage of this technique is that it gives us an overview of Information and schedule of the irrigation process, using the algorithm of a cellular internet interface.

In [13 14], the authors have given an idea of low costing based on wirelessly controlled irrigation system. The basic purpose of implementing this technique was to save the maximum amount of water. The main drawback of this technique is that its maintenance cost is too high.

3. PROPOSED WORK:

In this model different components are attached for specific functions. To monitor plants soil moisture, we have attached soil moisture sensor to node MCU as well as we attached temperature and humidity sensor for monitoring surrounding of plant. These data can be access by mobile application. In other part we have robot which is running on 12v battery. In these robots we attached 4 300rpm BO motors, and they are controlled by motor shield. We are using water as well for watering plants. And these robots can be controlled by android application.

4. PROPOSED SYSTEM ARCHITECTURE

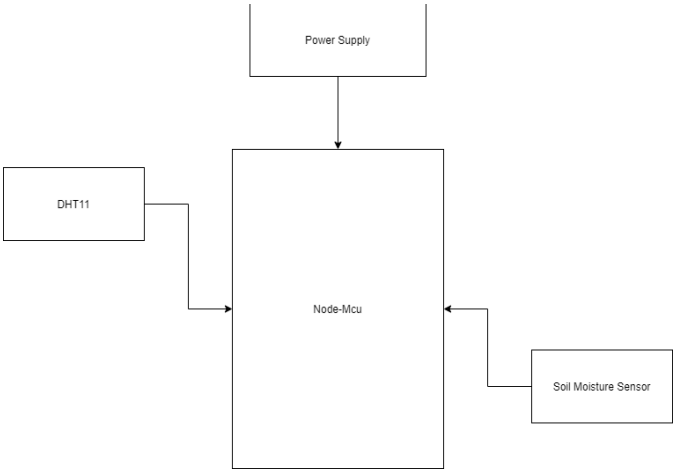

Fig:01

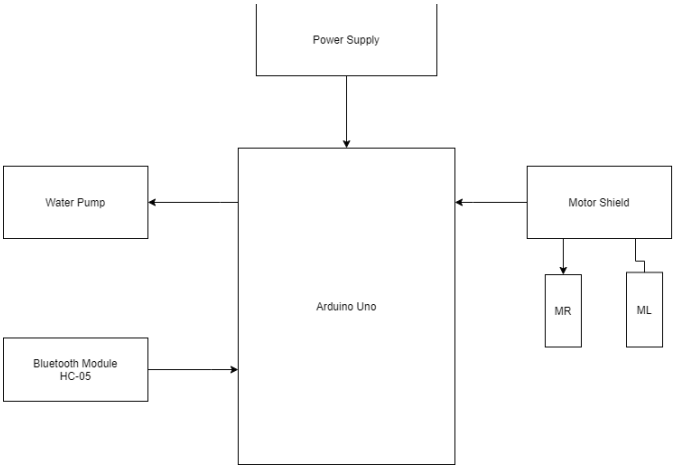

Fig:02

5. PROPOSED WORK SCOPE

The scope of this project is to save water and reduce Human man intervention in the agriculture field. Continuously monitoring the status of sensors and provide the signal for taking a necessary action. To get the output of a waterer sensor & provide water to crop accordingly for getting better crop and plant growth. IoT is helping the farmers by monitoring growth stages of the crop, diseases, an estimation of the yield by giving otherwise restricted low-power, low-cost devices access to higher processing capabilities via wireless technologies.

Smart irrigation helps a minimalism wastage of water. It allows reinvesting in new and improved technologies which ensures sustainable able and responsible irrigation over time. It also allows controlling the amount of water delivered to the plants when it is required.

6. SYSTEM REQUIREMENTS

6.1. HARDWARE REQUIREMENTS

Node-MCU: -

Node-MCU is an open-source IoT platform. Node-MCU includes firmware that runs on the ESP8266 Wi-Fi SoC from Express if Systems which is predicated on the ESP-12 module. We use the c program for getting data from the sensor and send it to the server as well as to use to controlling robot movement.

DHT11: -

The DHT11 is basic, low-cost, digital temperature as well as humidity sensor. It uses a capacitive humidity sensor as well as a thermistor to measure the surrounding air and gives a digital signal on the data pin. It's fairly simple to use, but also requires careful timing to grab data.

Soil-Moisture: -

It's an important variable in controlling the exchange between water and heat energy between the land surface and the atmosphere through evaporation and plant transpiration. Soil moisture data has many uses like reservoir management, early warning of droughts, irrigation scheduling, and crop yield forecasting.

Motor Shield: -

The Motor Shield is a driver module for motors which allows you to make use of Arduino to control the working speed and direction of the motor. As it is Based on the Dual Full-Bridge Drive Chip L298, it is also able to drive two DC motors or a step motor.

Arduino Uno: -

Arduino/Genuino Uno is a microcontroller board based on the ATmega328P which has a total of 14 digital input/output pins out of which 6 pins can be used as PWM outputs, 6 pins

as analog inputs, also it has a 16 MHz quartz crystal and many other like a USB connection, a power jack, an ICSP header and a reset button.

Bluetooth Module HC-05: -

HC-05 Bluetooth Module is a Wireless Communication device based on the Bluetooth Protocol. Following module is based on BC417 Single Chip Bluetooth IC.

6.2. SOFTWARE REQUIREMENTS

Arduino IDE: -

The Arduino Integrated Development Environment (IDE) is a cross-platform application. It is basically used to write programs in C & C++ and upload programs to Arduino compatible boards, along with the help of third-party cores, and other vendor development boards.

Blynk Android Application: -

Basically, Blynk is a Platform that is used to control Arduino, Raspberry Pi and the likes over the Internet with IOS and Android app. In this Application, you can also build a graphic interface for your project.

MIT app inventor: -

Basically, MIT App Inventor which is an intuitive, visual programming environment. MIT App Inventor allows everyone to build a fully functional application. The ones who are new to MIT App Inventor can create or build their very first and a simple application and run it in short time.

7. METHODOLOGY:

The sensor such as DHT11 Temperature, Humidity and Soil moisture sensor is used and the data acquired from sensors is transmitted to the web server using wireless transmission. The data processing is the task of checking various sensors data received from the field.

We make robot which can operate remotely the tank and water motor attach on robot so we can supply water to plants.

8. Mathematical Model:

Selected problem statement

S1= {s, g, Y, F, Z}
s=Initial state: User interaction with app
g=Get data: App get data from server.
Y=For user: Checking the warning of low moisture level.
F= Use application to reach plant and watering plant.
E=End state: Moisture level back to normal

9. RESULTS:

Fig:03 **Displays the Plants Data**

All the acquired data is shown through wireless network in the mobile. In above diagram, Fig 03 we have received the data of soil moisture, Temperature, Humidity.

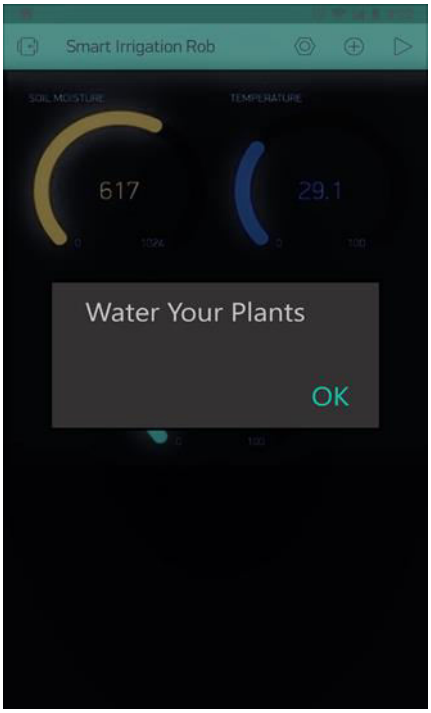

Fig:04 ALERT NOTIFICATION

In above fig 04, it displays that the user should water the Plants. If the soil moisture is less then it notifies us with a message "Water Your Plants" as shown in fig04.

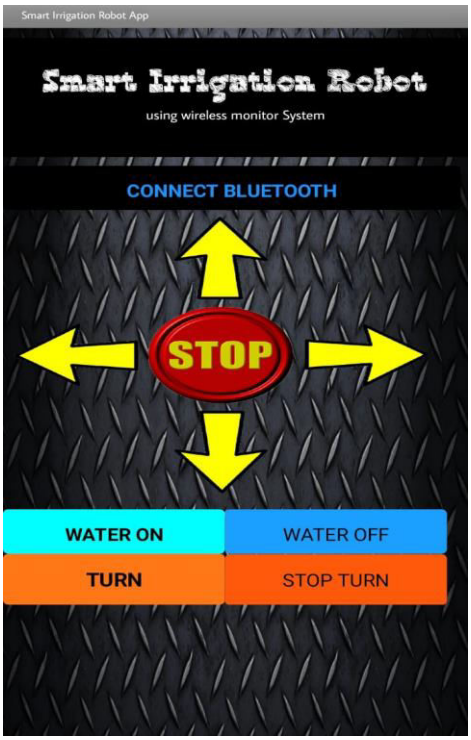

Fig:05 **HOMEPAGE**

The above fig 05, is the homepage of the application. Its displays us the all the activities that will be performed.

As it is connected via Bluetooth it shows the option to connected to Bluetooth also when to water plants or stop watering the plants.

10. FUTURE ENHANCEMENT

We can use cloud-based services to control and monitor Plant's soil moisture as well as robot. For that we can attach camera to the robot to see visual of actual field. Also, we can use solar panels to power robot so no need to charge battery every time. Attach GSM module to monitoring system can give us low moisture level warning when we are not connected to internet or we are offline. If our robot is running on same path everyday so we can set its path then robot will water plants on just one click no need to control.

11. CONCLUSIONS

By using the proposed automated irrigation system, Wastage of water can be saved. It also improvises the irrigation cycle and renders it a successful one & a very helpful one. Furthermore, with this method, water delivery to fields is achieved more efficiently. The designed controlled robot is controlled wireless through different commands and the collected information of the field is displayed remotely on the mobile application. Thus, this method has greater priority over all other methods of irrigation because of its consistency and usability. The maintenance cost of our project is low and, in the future, it could be deployed on a commercial basis because of cost- effectiveness.

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Web-based enhancement in document digitization using AES

Prof.Sonali S. Patil[1], Swapnil A. Kotkar[2], Ashutosh H. Singh[3]

[1]Dept. of Computer Engineering, SRTTC FOE, MH, India
[2] Dept. of Computer Engineering, SRTTC FOE, MH, India
[3] Dept. of Computer Engineering, SRTTC FOE, MH, India

Abstract -To develop a web-based system, which will save time and hassle free process of submission of supporting documents to the different service sectors. The system overcomes the problem of carrying and showing hard document to particular sector's official. There has been increasing request for secure system which must be dependable and fast approachable for every individual. Web-based document digitization is one of the reliable and quicker identification of objects. Performance and efficiency are the two main goals of our document digitalization systems. Technologies are being increasingly used by us in everyday lives from retail stores, showrooms to government offices. They enable us to connect with one another as well as share information about issues and concerns that we encounter. Our project allows an individual to save online and digitally share the documents issued by any government department, educational institute, transport department and other agencies. It is one of the ambitious aspects of Digitization. It is a system which secures the insecurities regarding losing the crucial documents. Further this paper explains about our project i.e. document digitization with features, objectives of our website. If a person wants to create his/ her account, he/ she are required aadhaar no. along with a mobile no. which is linked to his/ her aadhaar no. This facility is a step to eliminate the use of physical documents and making it paperless.

Keywords- digitization, documents, document encryption, etc.

1.INTRODUCTION

Almost all government-issued documents in India are currently available in physical form. This means that every time a resident has to give the document to an agency for a service to be available, there will be a certified photocopy in physical or scanned. The use of physical copies of documents creates a lot of overhead in terms of manual review, paper storage, manual audits, etc., which causes high costs and inconvenience, which creates a problem for multiple agencies in verifying the authenticity of these documents, which creates problems Loopholes for the use of forged documents[1]. Because of the nature of these documents, which do not have a strong identity associated with them, anyone with the same name can abuse someone else's document[1]. Hence, India needs to add technology in everything from government offices to corporations, schools, and universities to healthcare, etc. Private companies are also moving towards information technology because they know this change is necessary. The Indian government's Digital India project aims to make government services available to individuals electronically while eliminating paperwork. The development of a two-way stage will profit both the specialist co-op and the user. This initiative depends on the inter-ministerial department where all ministries and departments offer their services to the public. Our web-based system provides a free platform for citizens to save and retrieve vital papers. It helps citizens digitally save their important documents such as PAN cards, RTOs, and mark sheets, certificates on-site. It provides secure access to government-issued documents and personal documents of authenticity provided by the aadhaar card. The goal is to eliminate the need for physical documents by allowing government agencies to exchange authenticated electronic papers. Three major stakeholders are citizens, issuers, and the applicant[5]. Publishing a digital document on the internet is of limited use unless it can be safely restored from the database. Unlike traditional cloud storage solutions like Google Drive or Dropbox, It consists of two parts: one part stores link to documents that are issued to citizens by a government agency that has registered with our system, and the other part can be used to upload old or older documents that citizens wish. One of the most important aspects of our system is that the aadhaar integration provides citizens with a secure platform to store electronic documents[9].

2. RELATED WORK

A document management system is becoming a mandate for Public Sector and Government Agencies with tens or hundreds of thousands of documents to organize, index, and handle their papers in a hassle-free manner. Public Sector and Government Agencies deal with a wide range of documents, from public view documents like Tenders to the most sensitive and secret documents that are only meant to be seen by a select group of people. Storing all of these documents as physical records not only takes up a lot of space but also puts them in danger of being lost. Instead, manage them safely with limited access[4]. Paper documents can take up a lot of space, and the amount of paper used is growing every day. In particular, documents have to keep with us. It is critical for any firm, regardless of size, to preserve its data and other valuable assets[4]. Paper is one of the most significant information security threats for businesses, as printed papers are readily lost, mistreated, or damaged, but digital data may be protected and safely stored on hard discs or electronic devices. Damage, loss, misplacing, or theft of manual documents is a common occurrence. A fire or natural calamity could result in the loss of critical data. If you don't have any backups, you won't be able to recover the information once the files have been deleted. In a paper-based system, transporting documents is difficult, sluggish, and inefficient. You can simply attach files to our system and transfer information promptly if you have a digital document management system in place. You'll have to rewrite all of the

text in a paper-based document if you wish to make changes. If you wish to make further corrections, you'll have to repeat the process. You will have to make a copy of the original document to keep track of all the changes you've made. The accompanying costs are one of the most significant disadvantages of paper-based document management systems. You'll need extra printers, photocopiers, stationery, and other office supplies in addition to tones of paper. These expenditures build up quickly and can quickly become a considerable expense for many businesses.

To replace the traditional paper-based method, which was designed to reduce paper waste due to minor issues. We established a global database in the concept of the digital document so that users can access various sorts of papers from anywhere in the world. Document digitization allows users to access documents in digital form from any location, breaking down geographical, time, and simultaneous access constraints. Document digitization allows a business to eliminate physical papers, which use resources such as office space, security employees, and a decay-free atmosphere. We can optimize these resources for cost reduction once the data has been digitized. Data accessibility promotes data flow throughout a company, which leads to increased productivity. This technology has the potential to be used in a variety of government services, including RTOs, hospitals, and education. With a focus on the public sector, this system was designed to be a first step toward digitizing our country's paper-based system and transforming it into an electronic paper-based system.

3. METHODOLOGY

1. When a new user wants to use our system, then the user needs to do registration on our system. The user must have an aadhaar number and mobile number which is linked to an aadhaar for registration. Admin of our system will upload the documents of newly registered users.
2. Then for the documents upload procedure, Admin will log into the system. Admin will check and verify original documents provided by a new user. After verification of documents, the admin will scan them and documents will get converted into jpg format. For document security, these uploaded documents will be encrypted. These encrypted documents will be stored in the database.

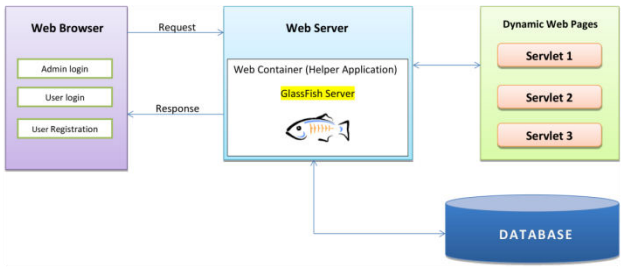


Figure 1

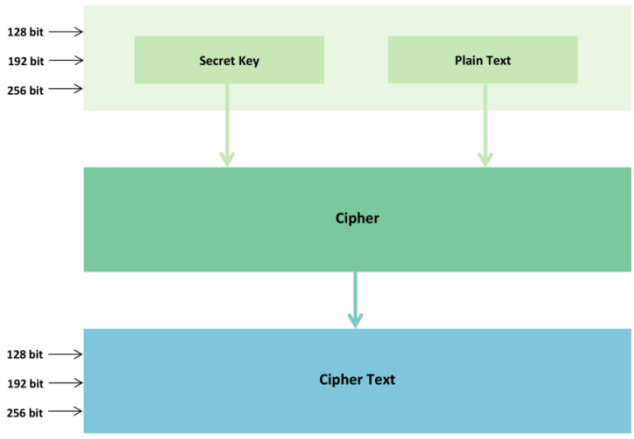


Figure 2

AES Algorithm for File Encryption:

For encryption of data:-

START

Step 1:- U=Upload(file), he input is consider as Text, is being converted to 128 bit plain text.

Step 2:- R= Read(input file),

Step 3:- K=Key generation(file) e.g.= key=123456;

Step 4:- E=Encrypt(file, key), encode the upcoming file

Step 5:- C=Convert(file), If(encrypt), then file convert plain to cipher text Split(file1, file2); Stored(file) Else, file not encrypted

Step 6:- D=Decrypt(file), decode the file if (decode), then file convert cipher text to plain Combine (file1, file2); Else, file not decoded

Step 7:- Download file

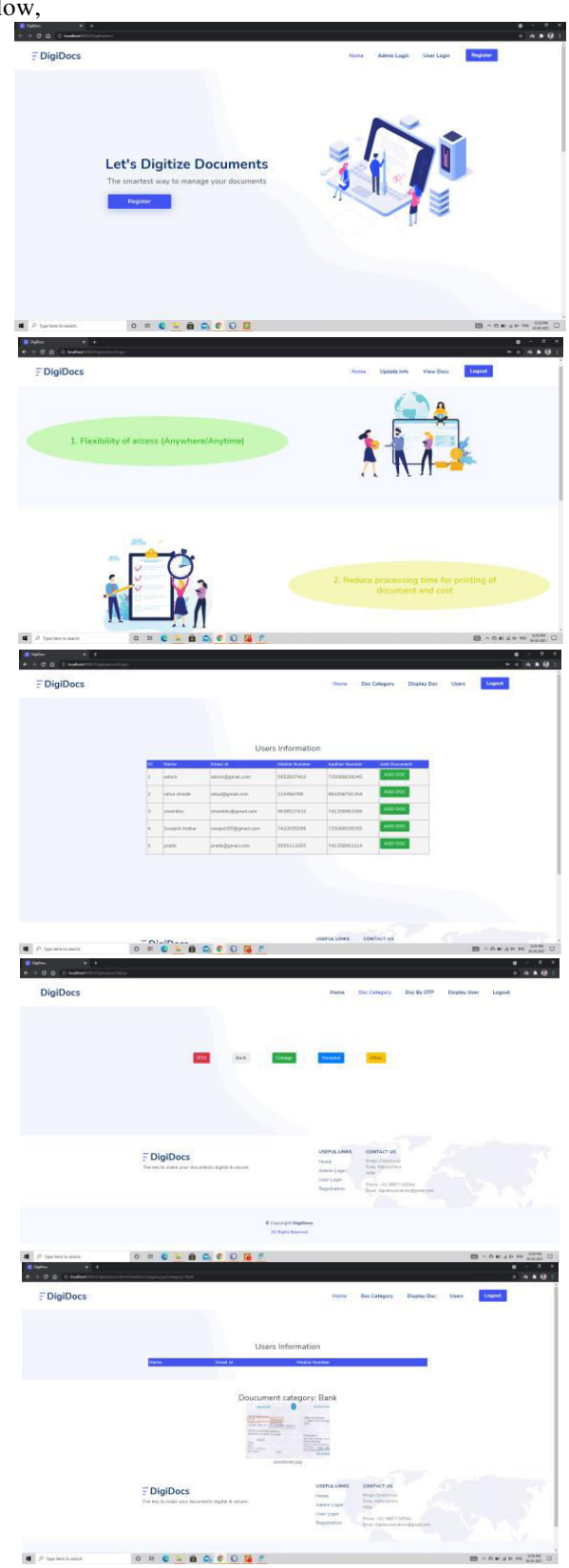
END

4. IMPLEMENTATION

We have created web application is java based. And for the web pages JSP/Servlet used in this project. All these webpages are using glassfish server for hosting on web-browsers. For the database connectivity, MYSQL is used in our web-application. When new users will register to our system, their data automatically will be saved to MYSQL database. And also when admin will upload users' documents to their account, it will be saved to MYSQL database. For the security of users' documents, our system has provided document encryption. For the Encryption of users' documents, we have used AES (Advanced Encryption Standard) algorithm. The AES algorithm that takes plain text in blocks of 128 bits and converts them to cipher-text using keys of 128, 192 and 256 bits. We have also mentioned the algorithm steps

of AES in section III. The architecture of AES algorithm is as shown in figure 2.

Here are the implementation pictures of our system as given below,



5. FUTURE ENHANCEMENT

We can offer "Login with Google" practicality to users for fast registration. From taking feedbacks from users we are going to enhance our web site to a lot of user-friendly within the future. We will use Artificial Intelligence to verify users' documents[15]. We can develop a mobile application for instant access to users' documents. So user can access their documents within seconds. We can expand our platform by partnering with the government and we can establish a central portal system for easy and convenient access. We can use AWS for the best connectivity and security of their services[13]. In the future, we can give door-to-door services of document verifying & uploading to users.

6. CONCLUSION

This facility has been provided to users to help them digitally store their documents like RC, DL, medical reports, certificates, etc. electronically. Our system has reduced paperwork and eliminated the use of Xerox copies of original documents. Users can rapidly access documents anywhere/anytime. And because of the document encryption provided by our system, users' documents are totally secured on our website. To conquer the issue of showing any printed version of an archive to a specific government official, we have fostered a framework that will save time and bother for the official needing to watch that printed copy of a record of that specific client.

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Improvisation of Healthcare Security System with Incorporation of Machine Learning Algorithms

[1]**Prof. Anjali S. More**,[2]**Diksha M. Naikade**,[3]**Divya D. vhawale**

[1] *Assistant Professor, Department of Computer Engineering, SRTTC FOE, MH, India*
[2] *Student, Department of Computer Engineering, SRTTC FOE, MH, India*
[3] *Student, Department of Computer Engineering, SRTTC FOE, MH, India*
(Savitribai Phule Pune University)

Abstract: A World Health Organization (WHO) calls cancer a generic term for a large group of diseases that can have an impact on any aspect of the body. Sometimes it could be the cause of the loss of patients. If cancer is diagnosed and treated early, mortality can be minimized. The classification of patients due to their answers to a survey has been done to determine someone who has highly cervical cancer risk. We will give symptoms as input. The classification is done according to the symptoms. There are 858 entries in the collection, each having 33 characteristics and a biopsy result. In the dataset, the number of patients with a cervical cancer diagnosis is 55 and the number of healthy patients is 803. The dataset was randomly split into two groups: train and test. The training group is 66% of the main dataset so there are 565 records in the training dataset. The rest of the dataset has been assigned as a test dataset. The classification has been done by using various methods like Naive Bayes, Random Forest, SVM, and Decision Tree. Correctly classified instances and percentages, true positive and false positive classified instances rate for each class and confusion matrix have been presented for each method. And all of the results are discussed.

Index Terms **- Cervical Cancer, Naive Bayes, Classification, Internet of Things, Random Forest Classification, Machine Learning.**

1. Introduction

Cervical cancer develops as cells in a girl's cervix, which binds her uterus to her vagina, alter. Most cancers may affect the deeper tissues of the cervix and can spread to other parts of the body (metastasize), including the lungs, liver, bladder, vaginal region, and rectum. The majority of cervical cancers are caused by infection with the human papillomavirus (HPV), which can be prevented by a vaccine. Cervical cancer develops slowly, so it's usually possible to detect and treat it before it causes serious complications. Every year, fewer and fewer girls die as a result of improved screening through Pap tests. Women between the ages of 35 and 44 are the most likely to contract this type of infection. More than 15% of new cases are in women over 65, especially those who haven't been having frequent screenings. The proposed research study is about the implementation of Machine Learning (ML), which is closely connected to (and often overlaps with) predictive statistics and has many links to mathematical optimization.

2 Literature Survey

Amita Dessai, Moffy Vas, A computer tomography scan is used by radiologists to diagnose and monitor the progression of cancer in the body. Visual database interpretation may lead to a later cancer diagnosis, resulting in late cancer care, which only serves to raise cancer mortality rates. As a result, image recognition software can be used to detect cancer in its early stages. This article proposes a lung cancer detection algorithm that uses mathematical morphological operations to segment the lung area of interest, from which Haralick features are extracted and used by artificial neural networks for cancer classification.

According to Annette McWilliams, Parmida Beigi, Akhila Srinidhi, Stephen Lam, and Calum E. MacAulay, E -nostril measurements could distinguish lung cancer patients from high-hazard control subjects with a higher than 80 % classification accuracy. Topic intercourse and smoking popularity affected the group, as shown by the results below the curve (Ex-smoker adult males score 0.846, ex-smoker females score 0.816, current smoker man scores 0.745, and current smoker girl scores 0.725.)Two e-nostril systems could be set up to provide the same readings during the subject's exhaled breath, and the results could be measured in parallel. Conclusions: E-nostril generation should be used as a non-invasive screening technique to identify people at risk of lung cancer. The compounds found in the alveolar cavity are essential.

Ho Tak Lau, Adel Al-Jumaily, in this paper, an automatic skin cancer classification scheme is developed, and the relationship of skin cancer images through various types of neural networks is investigated using various preprocessing techniques. The images are fed into the device and processed through various image processing procedures to improve the image properties. The normal skin is then removed from the infected region, leaving only the cancer cell in the picture. These images can be used to extract useful information that can then be fed into the classification system for training and testing. In image science software, the recognition accuracy of the 3-layer back-propagation neural network classifier is 89.9%, and the auto-associative neural network is 80.8 percent.

J. Geoffrey Chase, Tom Botterill, Thomas Lotz, Amer Kashif The internal stiffness of the breast can be inferred by the surface motion of a vibrated breast, causing a tumor to be seen. A computer vision system for properly sensing 3-D floor motion is described in this study. A version-based total segmentation is used to recognize the profile of the breast in each image, and the 3-d floor is reconstructed using the profiles as a guide. The floor movement is computed with the help of a current optical glide implementation custom designed for the application, then trajectories of factors at the 3-D floor are obtained by fusing the optical flow implementation custom designed for the application, and trajectories of points on the 3-D surface are obtained by fusing the optical glide with the drift with the surfaces that have been preserved. The machine outperforms and earlier marker-based system at measuring skin surface motion, according to data from human trials. The research study demonstrates that the scanner can identify a ten-millimeter tumor in a silicone phantom breast. Display the abstract. The DIET breast cancer screening device uses a vision-based 3-D floor activity capture system.

Azadeh Noori Hoshyar, Adel Al- Jumpily In several countries, especially Australia, skin cancer is on the rise. Early detection of skin cancers aids in the effective treatment of cancer; hence, cancer curability and survival are contingent on detecting cancer early. Automatic prognosis can help to improve diagnosis accuracy because scientific findings are restricted in their ability to diagnose cancer. The final goals of this paper are to study previous skin cancer detection studies and to evaluate automatic skin cancer detection. It includes an analysis of the literature on computerized skin cancer diagnosis as well as a step-by-step breakdown of the process. Discover the 17+ million people who have taken part in surveys around the world.

One of the most common alternatives to X-ray mammography as an imaging modality is ultra-wideband (UWB) radar for the early detection of breast cancer, according to Dallan Byrne, Martin O'Halloran, Edward Jones, and Martin Glavin. Several beam shaping algorithms that take advantage of the dielectric contrast To detect cancerous Amplifications, a microwave frequency difference between normal and cancerous tissue has been identified. Since dielectric heterogeneity in the breast has a direct impact on a beamformer's ability to identify very small tumors, designing an efficient beamformer for this application is a major difficult task This paper examines and contrasts three data-independent beamforming algorithms, putting each one to the test on an anatomically accurate, MRI-derived breast model that includes recently published dielectric property data.

R.S.A. Raja Abdullah, A Munawar, S Adabi, Al Ismail, MI Saripan, R Mahmood, WNL Wan Mahadi, R.S.A. Raja Abdullah, R.S.A. Raja Abdullah, R.S.A. Raja Abdullah, R.S.A. Raja Abdullah, R.S.A This paper describes the results of a preliminary study into the identification of breast cancer using a special form of bistatic radar known as forwarding Scattering Radar (FSR). For cancer diagnosis and localization, the proposed approach analyses the Doppler frequency in the obtained signal scattered from the tumor. Three architectures were investigated, each of which was determined by the mechanical action of the transmitter, receiver, or both. Also, as a feasibility assessment of using FSR for breast cancer diagnosis, this paper addresses an initial simulated outcome using CST Microwave Studio. It has been shown that cancer can be predicted by examining the peculiar characteristics of Radar Cross Section (RCS) for breast tissue and FSR tumors. An electromagnetic model of fatty tissue and a tumor was simulated and analyzed to obtain the RCS parameter, as well as compared to fatty tissue without a cancerous lesion to pinpoint the presence of tumor from its FSR characteristic. In FS RCS, the results indicate a large difference between these two models.

Write and save the material of the document as a separate text file before beginning to format it. Separate the text and graphic files before the text has been styled and formatted. Hard tabs should be avoided, and hard returns should be used only once per paragraph.

2.1 Referred Dataset for proposed WorkDescription

The proposed work deals with the study of sample data files from Patient_train.csv.There are 858 statistics in the dataset, each with 33 attributes and a biopsy result. The number of women diagnosed with cervical cancer in the dataset is 55, while the number of healthy patients is 803. This dataset was split into teaching and test companies at random. This dataset was split into teaching and test companies at random. The training dataset contains 565 statistics and it makes up 66 percent of the main data collection. Taking a look at the dataset has been delegated to the relaxing of the data collection. Several methods, such as Naive Bayes, Random Forest(RF), Support Vector

Machine(SVM), and Decision Tree(DT), were used to create the group.

2. Proposed System Requirement Specification

2.2 Description

For cancer diagnosis, there is no automatic method available.

- In the medical sector, there is no such thing as automatic. The procedure for detecting cervical cancer.[1]
- The death rate is that as a result of cancer.
- Signs are used to diagnosing cancer using a manual
- procedure.

2.2.1 Proposed Work Scope

When a comprehensive overview of all aspects of the software package to be developed is required before the project can begin, a software specifications specification (SRS) is firm the groundwork. It's important to note that a formal SRS isn't always written. Time spent on an SRS is often better spent on other software engineering tasks.

- To be able to comprehend the issue sentence.
- To know what are the hardware and software requirements of the proposed system.
- To have an understanding of the proposed system.
- To do planning various activities with the help of a planner.
- Designing, programming, testing, etc.

3 . Proposed System

3.1 Description

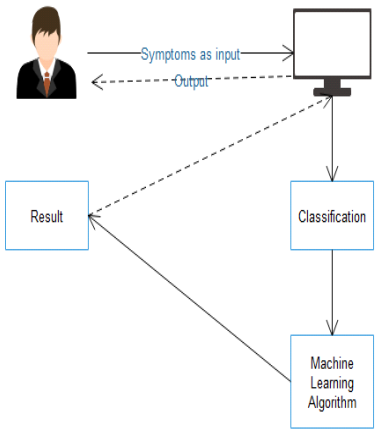

Fig. 4.1 Proposed System Architecture

In this Figure 4.1, the User gives symptoms as an input to the system. The system should work on the given input. First of all, with the help of the database, classification of the symptoms should be done. After the classification of the symptoms, the algorithm should be applied to the given symptoms. After applying the algorithm, the system should determine the patient is suffering from cancer or not.

5.IMPLEMENTATION

5.1 Data Pre-processing

Data Preprocessing

```
In [0]: # Imputing the missing values from the given dataset
        # we will impute the categorical variables with 0 or 1 and continuous variables with median value

        data['Number of sexual partners'] = data['Number of sexual partners'].fillna(data['Number of sexual partners'].median())
        data['Number of sexual partners'].isnull().any()

        # data['Number of sexual partners'].value_counts()

Out[96]: False

In [0]: # Imputing the missing values from First sexual intercourse

        data['First sexual intercourse'] = data['First sexual intercourse'].fillna(data['First sexual intercourse'].median())
        data['First sexual intercourse'].isnull().any()

        # data['First sexual intercourse'].value_counts()

Out[97]: False
```

Fig. 5.1 Data Pre-Processing

5.1.1 Dataset Understand

Importing the Dataset

```
In [8]: data = pd.read_csv("kag_risk_factors_cervical_cancer.csv")

In [4]: data.head(4)

Out[4]:
```

	Age	Number of sexual partners	First sexual intercourse	Num of pregnancies	Smokes	Smokes (years)	Smokes (packs/year)	Hormonal Contraceptives	Hormonal Contraceptives (years)	IUD	...	STDs: Time since first diagnosis	STDs: Time since last diagnosis	Dx:Cancer	Dx:CIN
0	18.0	4	15	1	0	0	0	0	0	0	...	?	?	0.0	0.0
1	15.0	1	14	1	0	0	0	0	0	0	...	?	?	0.0	0.0
2	34.0	1	?	1	0	0	0	0	0	0	...	?	?	0.0	0.0
3	52.0	5	16	4	1	37	37	1	3	0	...	?	?	1.0	0.0

4 rows × 36 columns

Fig. 5.1.1Dataset

5.1.1 Data Quality

```
In [6]: data.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 861 entries, 0 to 860
Data columns (total 36 columns):
 #   Column                              Non-Null Count  Dtype
---  ------                              --------------  -----
 0   Age                                 858 non-null    float64
 1   Number of sexual partners           858 non-null    object
 2   First sexual intercourse            858 non-null    object
 3   Num of pregnancies                  858 non-null    object
 4   Smokes                              858 non-null    object
 5   Smokes (years)                      858 non-null    object
 6   Smokes (packs/year)                 858 non-null    object
 7   Hormonal Contraceptives             858 non-null    object
 8   Hormonal Contraceptives (years)     858 non-null    object
 9   IUD                                 858 non-null    object
 10  IUD (years)                         858 non-null    object
 11  STDs                                858 non-null    object
 12  STDs (number)                       858 non-null    object
 13  STDs:condylomatosis                 858 non-null    object
 14  STDs:cervical condylomatosis        858 non-null    object
 15  STDs:vaginal condylomatosis         858 non-null    object
 16  STDs:vulvo-perineal condylomatosis  858 non-null    object
 17  STDs:syphilis                       858 non-null    object
 18  STDs:pelvic inflammatory disease    858 non-null    object
 19  STDs:genital herpes                 858 non-null    object
 20  STDs:molluscum contagiosum          858 non-null    object
 21  STDs:AIDS                           858 non-null    object
 22  STDs:HIV                            858 non-null    object
 23  STDs:Hepatitis B                    858 non-null    object
 24  STDs:HPV                            858 non-null    object
 25  STDs: Number of diagnosis           858 non-null    float64
 26  STDs: Time since first diagnosis    858 non-null    object
 27  STDs: Time since last diagnosis     858 non-null    object
 28  Dx:Cancer                           858 non-null    float64
 29  Dx:CIN                              858 non-null    float64
```

Fig. 5.1.2 Data Information

```
In [10]: data.isnull().sum()

Out[10]: Age                                 3
Number of sexual partners           3
First sexual intercourse            3
Num of pregnancies                  3
Smokes                              3
Smokes (years)                      3
Smokes (packs/year)                 3
Hormonal Contraceptives             3
Hormonal Contraceptives (years)     3
IUD                                 3
IUD (years)                         3
STDs                                3
STDs (number)                       3
STDs:condylomatosis                 3
STDs:cervical condylomatosis        3
STDs:vaginal condylomatosis         3
STDs:vulvo-perineal condylomatosis  3
STDs:syphilis                       3
STDs:pelvic inflammatory disease    3
STDs:genital herpes                 3
STDs:molluscum contagiosum          3
STDs:AIDS                           3
STDs:HIV                            3
STDs:Hepatitis B                    3
STDs:HPV                            3
STDs: Number of diagnosis           3
STDs: Time since first diagnosis    3
STDs: Time since last diagnosis     3
Dx:Cancer                           3
Dx:CIN                              3
Dx:HPV                              3
Dx                                  3
Hinselmann                          3
Schiller                            3
Citology                            3
```

Fig. 5.1.2 Data Missing Values

```
In [0]: # Imputing values for categorical variables

data = pd.get_dummies(data = data, columns = ['Smokes','Hormonal Contraceptives','IUD','STDs',
                                              'Dx:Cancer','Dx:CIN','Dx:HPV','Dx','Hinselmann','Citology','Schiller'])

data.isnull().sum()

Out[122]: Age                                 0
Number of sexual partners           0
First sexual intercourse            0
Num of pregnancies                  0
Smokes (years)                      0
Smokes (packs/year)                 0
Hormonal Contraceptives (years)     0
IUD (years)                         0
STDs (number)                       0
STDs:condylomatosis                 0
STDs:cervical condylomatosis        0
STDs:vaginal condylomatosis         0
STDs:vulvo-perineal condylomatosis  0
STDs:syphilis                       0
STDs:pelvic inflammatory disease    0
STDs:genital herpes                 0
STDs:molluscum contagiosum          0
STDs:AIDS                           0
STDs:HIV                            0
STDs:Hepatitis B                    0
STDs:HPV                            0
STDs: Number of diagnosis           0
STDs: Time since first diagnosis    0
STDs: Time since last diagnosis     0
Biopsy                              0
Smokes_0.0                          0
Smokes_1.0                          0
Hormonal Contraceptives_0.0         0
Hormonal Contraceptives_1.0         0
IUD_0.0                             0
```

Fig. 5.1.2 Accurate Data

5.1.2 TP and FP Rate

```
In [0]: # compiling the model
model.compile(optimizer = 'adam', loss = 'binary_crossentropy', metrics = ['accuracy'])

# feeding training data to the model
train_history = model.fit(x_train, y_train, batch_size = 150, epochs = 35, validation_split = 0.2, verbose = 2)

Train on 411 samples, validate on 103 samples
Epoch 1/35
 - 1s - loss: 0.0527 - acc: 0.9976 - val_loss: 0.0568 - val_acc: 1.0000
Epoch 2/35
 - 0s - loss: 0.0522 - acc: 0.9976 - val_loss: 0.0566 - val_acc: 1.0000
Epoch 3/35
 - 0s - loss: 0.0520 - acc: 1.0000 - val_loss: 0.0565 - val_acc: 1.0000
Epoch 4/35
 - 0s - loss: 0.0519 - acc: 1.0000 - val_loss: 0.0564 - val_acc: 1.0000
Epoch 5/35
 - 0s - loss: 0.0518 - acc: 1.0000 - val_loss: 0.0563 - val_acc: 1.0000
Epoch 6/35
 - 0s - loss: 0.0531 - acc: 0.9976 - val_loss: 0.0561 - val_acc: 1.0000
Epoch 7/35
 - 0s - loss: 0.0517 - acc: 1.0000 - val_loss: 0.0560 - val_acc: 1.0000
Epoch 8/35
 - 0s - loss: 0.0515 - acc: 1.0000 - val_loss: 0.0559 - val_acc: 1.0000
Epoch 9/35
 - 0s - loss: 0.0513 - acc: 1.0000 - val_loss: 0.0558 - val_acc: 1.0000
Epoch 10/35
 - 0s - loss: 0.0512 - acc: 1.0000 - val_loss: 0.0557 - val_acc: 1.0000
Epoch 11/35
 - 0s - loss: 0.0511 - acc: 1.0000 - val_loss: 0.0555 - val_acc: 1.0000
Epoch 12/35
 - 0s - loss: 0.0510 - acc: 1.0000 - val_loss: 0.0554 - val_acc: 1.0000
Epoch 13/35
 - 0s - loss: 0.0509 - acc: 1.0000 - val_loss: 0.0553 - val_acc: 1.0000
Epoch 14/35
```

Fig. 5.1.3 TP and FP Rate

5.1.3 Data Visualization

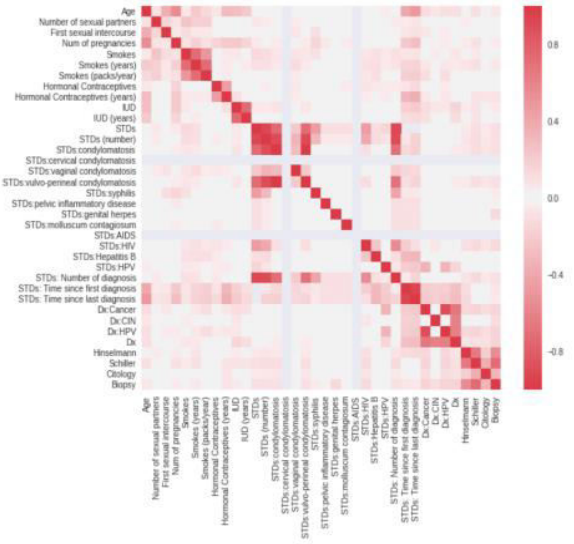

Fig. 5.1.3 Data Visualization

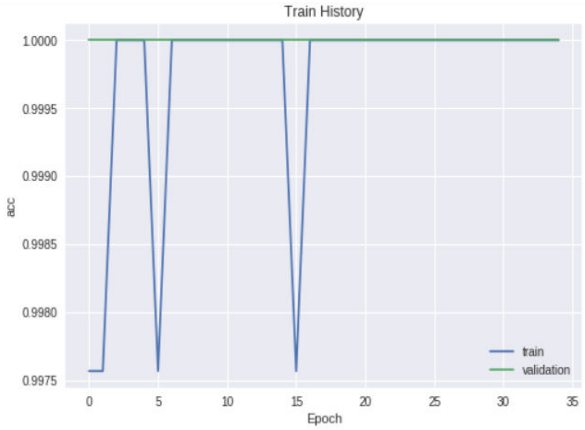

Fig. 5.1.4 Accurate Data Normalization

5.2 Data Processing

5.2.1 Data Normalization

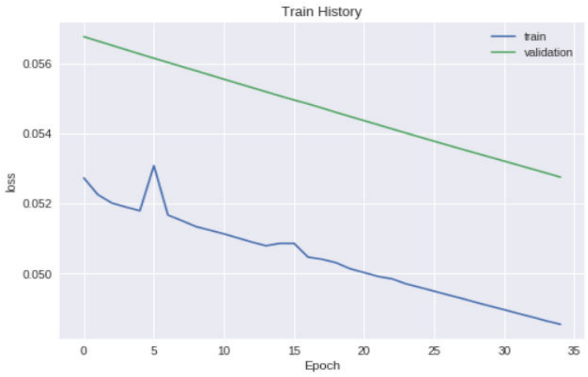

Fig. 5.1.4 Loss Data Normalization

5.2.2 Algorithm Used

Random Forest (RF)

Random forests or random decision forests are an ensemble learning method for classification, regression, and other tasks that operates by constructing a multitude of decision trees at training time and outputting the class that is the mode of the classes (classification) or mean/average prediction (regression) of the individual trees. For regression tasks, the mean or average prediction of the individual trees is returned. Random decision forests address the problem of decision trees overfitting their training set. Random forests outperform decision trees in most cases, though they are less accurate than gradient-enhanced trees. Data features, on the other hand, might have an impact on their performance.

Decision Tree (DT)

A decision tree is a decision-making aid that employs a tree-like model of decisions and their potential results, such as chance event outcomes, resource costs, and utility. It is one method of displaying an algorithm that consists solely of conditional control statements. Decision trees are a prominent technique in machine learning and are often used in operations research, particularly in decision analysis, to assist determine the best method for achieving a target. Decision trees are a prominent method in machine learning and are often used in operations research, notably in decision analysis, to assist determine the method most likely to achieve an objective.

Naive Bayes (NB)

Naive Bayes (NB) is a simple supervised function and is a special form of discriminate analysis. Because it's a generative model, it returns probabilities. It's the polar opposite of one Rule's categorization technique. To make a decision, each attribute weighs in equally and independently. Naive Bayes is a straightforward method for building classifiers, which are models that give class labels to problem cases represented as vectors of feature values, with the class labels selected from a limited strategy. Naive Bayes is a straightforward method for building classifiers, which are models that give class labels to problem cases represented as vectors of feature values, with the class labels selected from a limited prepare. The Naive Bayes classifier is used to solve binary and multi-class classification problems, particularly in the field of document classification, where text is typically utilized as input.

Support Vector Machine (SVM)

Support Vector Machine (SVM) is a relatively simple **Supervised Machine Learning Algorithm** used for classification and/or regression. It is more commonly used for classification, but it may also be quite effective for regression. SVM finds a hyperplane that divides the various types of data. This hyper-plane is nothing more than a line in two-dimensional space.SVM selects acute points/vectors that aid in the formation of the hyperplane. These numerous instances are known as support vectors, and the resulting set of rules is known as the Support Vector Machine. This preference boundary or hyperplane serves as a separator. In SVM, we plot each data item in the dataset in an N-dimensional space, where N is the number of features/attributes in the data. Next, find the optimal hyperplane to separate the data. So by this, you must have understood that inherently, SVM can only perform binary classification (i.e., choose between two classes). However, there are various techniques to use for multi-class problems.

5.3 **Mathematical Background**

Let 'S' be the system Where S= I, O, P, Fs, Ss
Where,
I = Set of input
O = Set of output
P = Set of technical methods
Fs = Set of Failure nation
Ss = Set of Success nation
Identify the enter statistics I1, I2, in
I = (Input Symptoms)
Identify the symptoms as O1, O2, on
O = (Symptoms detection)
Identify the Process as P
P = (Cancer detection from symptoms)
Identify the Failure state as Fs
Fs = (If cancer not detected, Delay in processing)
Identify the Success state as Ss
P = (Cancer detected).

6. Proposed System Architecture

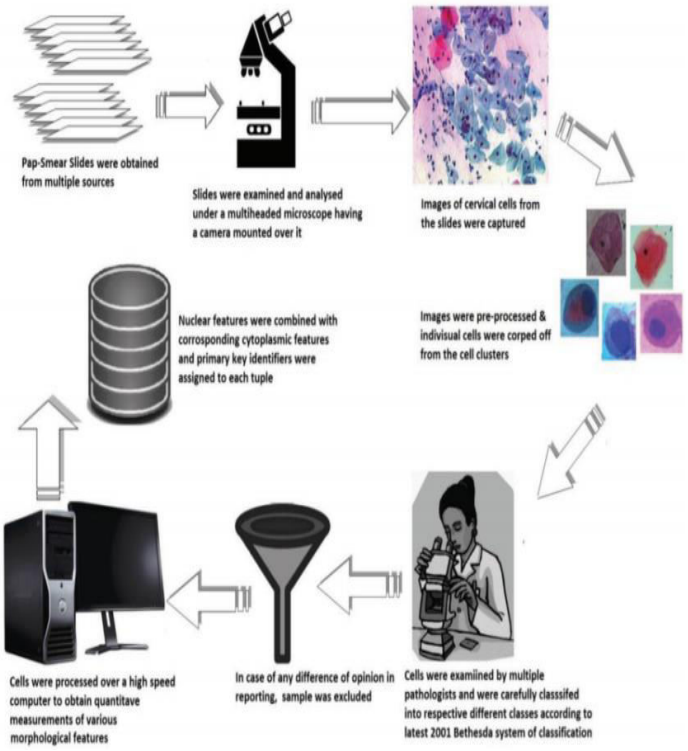

Fig. 6.1Block diagram of various steps showing how the digital database was prepared

Figure 6.1 shows the block diagram of how the clinical data was transformed into a digital database. For profiling of the cells so obtained, as open-source software "CellProfiler" was used which evaluated the cells based on 39 morphological features (figure-6.1). These profiled cell measures were then placed in a spreadsheet so that each tuple represented a cervical cell. Various other properties of the database were also integrated so that digital data could be easily correlated with the corresponding clinical case. A detailed analysis of morphological features is a prerequisite for any automated cervical screening system as such the features set chosen for quantitative evaluation have to be such that they should be precisely measurable in a specific time with good accuracy. 19 When opposed to manual interpretation by cytopathologists, which is subjective, lengthy, and frequently prone to human mistakes, computer approaches based on various image processing algorithms allow easy and proficient formulization of morphological traits.

7. Future Enhancement

- WHO's Global Strategy to Accelerate the Elimination of Cervical Cancer, launched today, outlines three
  key steps: vaccination, screening, and treatment. By 2050, successful adoption of all three might cut new occurrences of the illness by more than 40% and deaths by 5 million.

- Today's announcement is significant since it is the first time that 194 nations have pledged to eliminate cancer, after the passage of a resolution at the World Health Assembly this year.

- Meeting the following targets by 2030 will place all countries on the path toward elimination:

  1. By the age of 15, 90 percent of females had been properly vaccinated against HPV.
  2. 70% of women screened using a high-performance test by age 35 and again by 45.
  3. 90% of women identified with cervical disease receive treatment (90% of women with pre-cancer treated and 90% of women with invasive cancer managed).

8.CONCLUSION

The Proposed technical research examines the suitability of Nave Bayes(NB), Support Vector Machine(SVM), and Random Forest(RF) machine learning methods for detecting cervical cancer in the mentioned dataset. According to the research, if the gadgets identify cancer, the user should receive a message that cancer has been found. If no indications of cancer are present at the time, the result should be cancer not detected. As a result, the suggested study uses machine learning algorithms to predict cervical cancer detection in the mentioned sample data file. Hybrid machine learning methods can be used to improve the job in the future.

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ANALYSIS OF SENTIMENTS ON VOICE USING AWS COMPREHEND

Prof. (Mrs.) Vidya G. Shitole[1], Ajinkya Kamble[2], Pratik Naik[3], Pratik Parbhane[4]

[1]*Assistant Professor, Dept. of Computer Engineering, SRTTC FOE, MH, India*
[2]*Student, Dept. of Computer Engineering, SRTTC FOE, MH, India*
[3]*Student, Dept. of Computer Engineering, SRTTC FOE, MH, India*
[4]*Student, Dept. of Computer Engineering, SRTTC FOE, MH, India*
(Savitribai Phule Pune University)

Abstract - Sentiment analysis or opinion mining is a field of study that analyses people's thoughts, opinions, behaviors, and emotions from written language. It is one of the most active research fields in natural language processing, and it is also frequently investigated in data mining, web mining, and text mining. In fact, because of its importance to business and society as a whole, this research has spread beyond computer science into management sciences and social sciences. The rise of social media platforms such as reviews, forum discussions, blogs, micro-blogs, Twitter, and social networks parallels the rise of sentiment analysis. Sentiment analysis systems are adopted in practically every corporate and social field because opinions are significant to practically everyone's work and influence our behavior. In our study, we will use AWS cloud services to analyse sentiments. The future and one of the most remarkable technical advancements in the technological world are cloud computing. AWS consists of so many distinct cloud computing products and services. Cloud services for the general public are the fastest expanding. The AWS services are also used more quickly and accurately.

Keywords: AWS, AWS Comprehend, AWS transcribe, AWS lambda, Natural Language Processing, sentiment analysis.t.

I.INTRODUCTION

If choices are made that promote consumer satisfaction and loyalty, the correct data can be a game changer when it comes to making them accessible. For example, the real-time monitoring of consumer feelings in social media will assist you to spot a critical problem, and quickly impact your customers, so you can move decisively. The concept for sentiment analysis can be applied with Natural Language Processing (NLP) and a series of algorithms to find text patterns, automatically classifying views as positive, negative or neutral. Opinion mining is the way to discover whether a consumer has a positive, negative or neutral opinion, although sentiment analysis is used to evaluate the positive level and the negative level contained in the views presented. Indeed, opinion mining is employed in the sentiment analysis process, therefore both phrases are closely linked. It is necessary to decide the degree of positive or negative in phrase as, by review, a consumer would specify both good and bad things that he or she learnt from the product. Therefore, an overview that seems to be overall positive may also include a certain negative effect on those features; on the other hand, a poor evaluation will also provide an opportunity to identify beneficial results. This is where the analysis of sentiments gets the spotlight. In this field, there are many research projects, however most of the research concentrates on the study of the basic textual emotion that focuses on voice analysis. Sentiment analysis study is carried out on structured data, however today in days when data are generated at enormous pace on social media, this research is designed to analyse feelings of relatively complex, unstructured data. There are some approaches for the emotional analysis, such as using super vector engines, employing NaÏve Bays, or machine learning and profound learning approaches, however these are all processes that take time. We therefore choose to use the cloud for research. With cloud, the time factor is reduced and various advantages over conventional processes can be achieved. Therefore, we use AWS services to analyse sentiments. AWS Comprehend will be used to build the sentiment file, AWS Transcribes will be employed to convert audio into text and AWS Athena is used for converting data to structured data, AWS Glue will be used to build the metadata, AWS Lambda will be used to activate the audio file in the data store. This helps us understand the audio sentiment and makes it easy for people to boost their business as dashboards, such as bar charts.

II. LITERATURE REVIEW

[A] Sentiment of emotions on voice using AWS Comprehend:[1] In this paper author explained the method of performing voice sentiment analysis using AWS Comprehend. The method is based on AWS services like transcribe, lambda, S3 and Comprehend. This method is completely based on AWS. Author also told us about the challenges we faced while performing sentiment analysis.

[B] A Feature Based Approach for Sentiment Analysis by Using Support Vector Machine:[14] The authors in this work developed an analytical method using a new approach called the Vector Machine for Sentiment Analysis. It's hard to accomplish because it takes five separate steps, and that takes a lot of time to complete the task.

[C] A Comparative Study of Machine Learning and Deep Learning Techniques for Sentiment Analysis:[4] The report presents a comparison of various machine learning and deep learning and hybrid strategies. It is concluded in this research that in most cases, deep learning techniques deliver better results. However, indifference to the accuracy of the two methods is not very great and the approach to deep learning just makes it more difficult to solve these circumstances.

[D] Sentiment Analysis on Speaker Specific Speech Data:[5] The author described in this study a generally accepted model which uses an audio to do speech recognition that includes a dialogue between two people. Only the artificially generated data set works fine with this system. It does not accurately translate the speakers' feelings into conversational language.

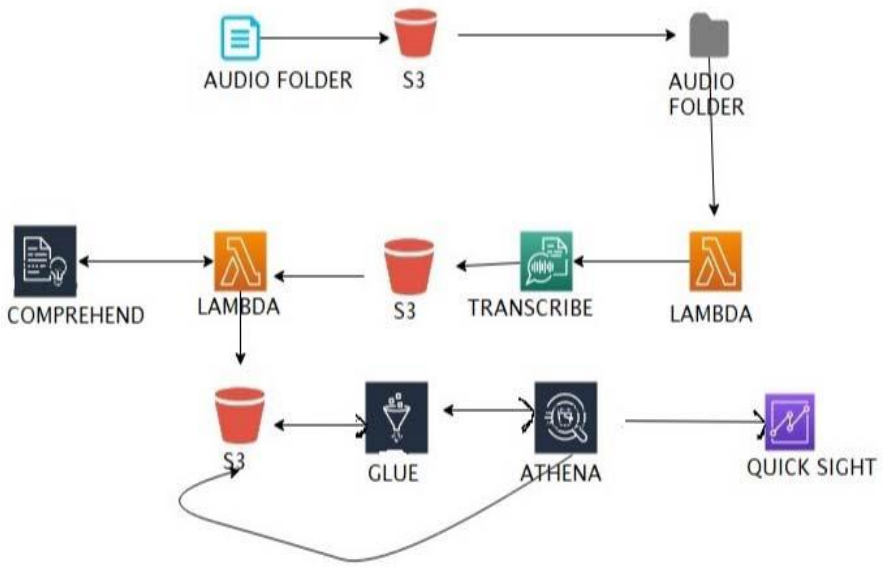
[E] Research on text sentiment analysis based on CNNs and SVM:[6] In this article the author proposes to combine SVM and a Coevolutionary Neural Network to create a sentiment analysis model (CNN). With this experiment, they observed that their technique provides greater accuracy than CNN or SVM alone for text sentiment analysis. During this process, the data set was handled so that it was initially filtered and subsequently filtered and Word2vec trained. While the SVM classifies, the CNN learns the features.

[F] Automatic speech emotion detection system using multi-domain acoustic feature selection and classification models:[13] In this paper recognition of emotions from speech is done automatically. In this research author first did the pre-processing using voice activity detection. Then author extracted the low-level descriptors from speech signals through short frames of speech. Then by using the sequential backward search algorithm discriminatory features from feature space is selected. Author obtained an accuracy of 78% and 71% respectively after experimenting using LDA and SVM.

III. PROBLEM STATEMENT

Sentiment analysis study is carried out on structured data, however today in days when data are generated at enormous pace on social media, this research is designed to analyse feelings of relatively complex, unstructured data. There are some approaches for the emotional analysis, such as using super vector engines, employing NaÏve Bays, or machine learning and profound learning approaches, however these are all processes that take time. We therefore choose to use the cloud for research. With cloud, the time factor is reduced and various advantages over conventional processes can be achieved. Based on an important knowledge and not a plain intuition, judgments can be taken since sentiment analyses can be automated, which is not always accurate. AWS services can be used to perform sentiment analyses better than conventional methods such as SVM machine learning algorithms and other methods. The use of AWS services can lead to automation in this field. The use of cloud services ensures improved integration and scalability.

IV. ARCHITECTURE DIAGRAM



First, we obtain the audio file from the source and load this file into the S3 bucket, and then we transfer that file to generate the text of the audio file using AWS lambda. This file will be saved to the S3 bucket again. Then by activating the AWS lambda, the text file is converted to the AWS Comprehend Sentiment File.

This database will be replicated to AWS Athena to make a query utilizing AWS Glue metadata from the Comprehend file, which is displayed using bar charts at the end using fast visual information.

V. SYSTEM OVERVIEW

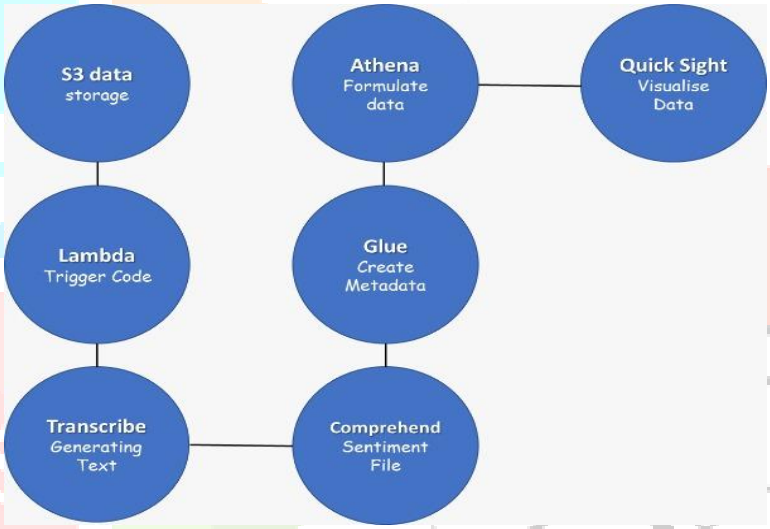
[A] PROPOSED SYSTEM

In this work, the author proposes an approach to sentimental analysis using AWS Comprehend. This approach involves three phases which extract the audio emotion. a) Transform audio from the AWS Transcribe service into text. B) To translate the text to feeling, use the AWS comprehend. c) It is scalable and able to increase resources through the AWS cloud when appropriate, by using AWS Glue and AWS, Athena as well as the final process of building the table of contents in the form of bar chart and proposed framework with several benefits, producing the sensitivity metadata and requiring them. Under this proposed arrangement, there is no need to spend extra money. We can only pay for our services and no further licenses required to buy. Tools can write code once and use it multiple times, therefore minimizing the time complexity of the developer. There is no security concern in the suggested framework as AWS Cloud provides security services like Identity Access Management (IAM), encrypted data supplies and no data purchase needs.

[B] Existing System

Existing System is based on the Support Vector Machine, and another is using CNN [6]. In the System which is based on the SVM we cannot perform the analysis easily as we have to go through the five different stages which takes lot of time. There is also a research which is done by using both the SVM and CNN together to improve performance. There are also the systems which are based on the deep learning and machine learning.

VI. FLOW DIAGRAM



First, the audio file will be saved in the S3 bucket. We will write the code using server less service lambda and trigger the audio file from S3, then we change the audio to the text via Transcribe. The file will be saved in an Comprehend S3 bucket when the text file is complete using lambda. The Comprehension Storage output can be viewed when a file is stored. We can then generate the metadata with AWS Glue and formulate them using Athena data. The data is displayed as bar charts using Quick Sight when the operation has been completed.

VII. MATHEMATICAL ORDER

Relevant Mathematics Associated with the Project

Let S be the perspective solution for the above problems.
S= {s,e,i,o, DD, NDD, Success, Failure, F}
s= start state
e= end statement
i= set of inputs
o= set of output
Success = Desired output statement
Failure = Desired output not generated
DD = Deterministic dataset
NDD = non-Deterministic dataset
F = functions.
S= {s, e, I, O, success, failure} the
I= {set of input frame}
O= {}
DD = {}
NDD = {}
F = {F1, F2, F3, F4, F5, F6}
Where
F1 =Login ()
F2 = Registration ()
F3 = Record Database ()
Success = {Prediction of voice}
failure = {Fails to predict voice}.

VIII. CHALLENGES

[A] Word Ambiguity

Some terms cannot be characterized beforehand for polarity, and their polarity largely depends on the sense of the sentence. You will meet this challenge while working on sentiment analysis. Some typical techniques are available, including Lexicon-based sentiment analysis. This lexicon comprises polarity-value opinion terms. Since word polarity is different in different domains, it is not possible to establish a universal opinion lexicon which has polarity for each word.

[B] Irony & Sarcasm Detection

Expressing negative sentiments using positive words is called Sarcasm. You can easily mislead sentiment analysis algorithms with Sarcasm unless they are designed to analyse sarcasm in this way. It can be tough to understand not only for a computer, but also for a person. It is challenging to train sentiment analysis models successfully because of the limitless variances in terminology used in sarcastic statements. Common topics, preferences and historical information must be exchanged between two individuals in order to make sarcasm accessible. In social media comments and postings, sarcasm is present mostly.

[C] Multipolarity

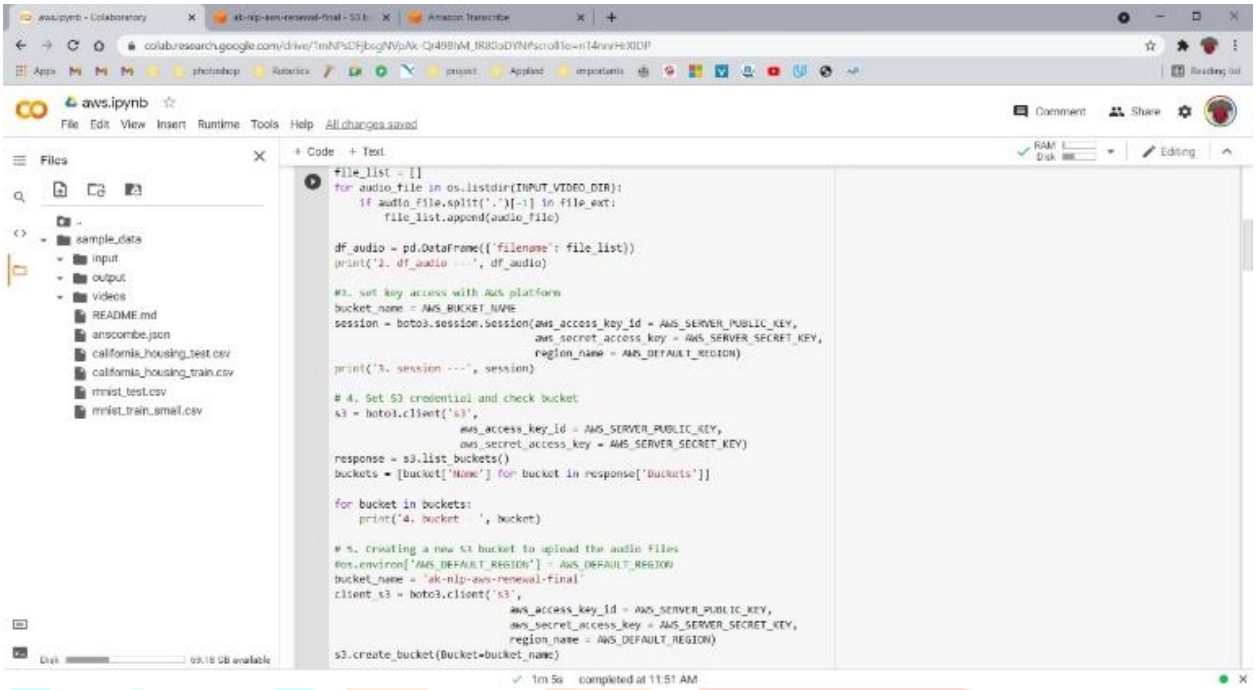
Sometimes a particular sentence or article can display multipolarity or any text unit we want to study. Thus, the overall results of the study can be tricky just like how sometimes an average masks vital information on all the figures that were entered. Picture when writers talk about other people, items, or companies in an article or review (or aspects of them). It is common for certain topics to be criticized and some to be praised in a work.

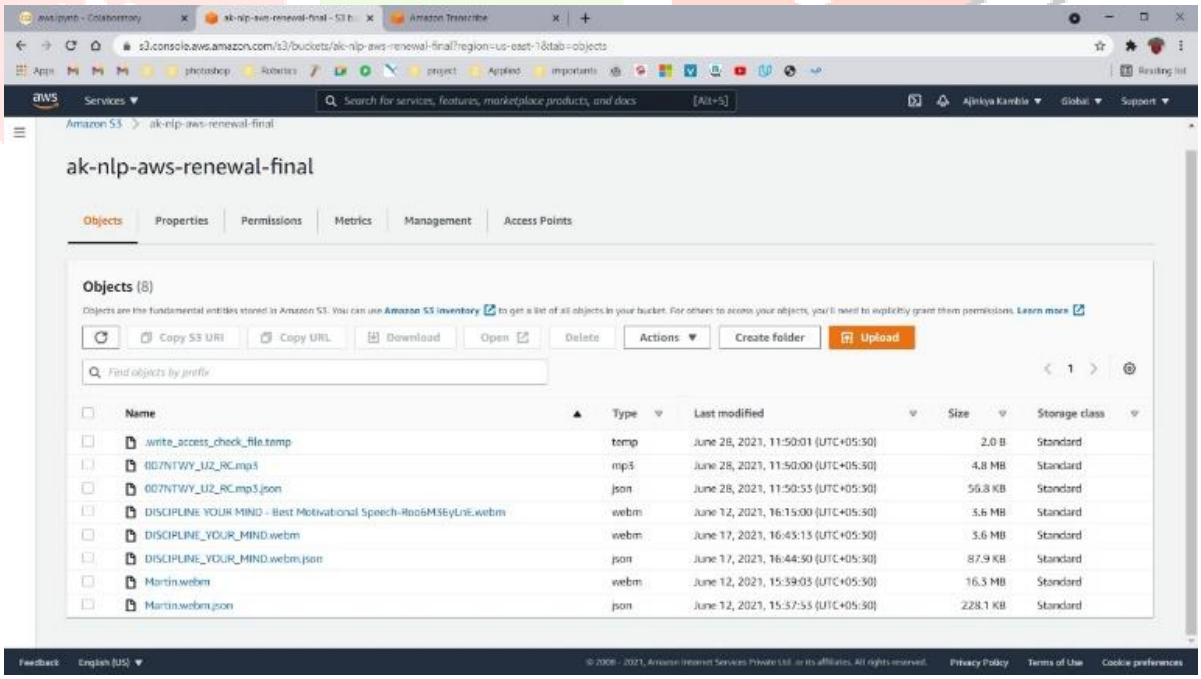
[D] Negation Detection

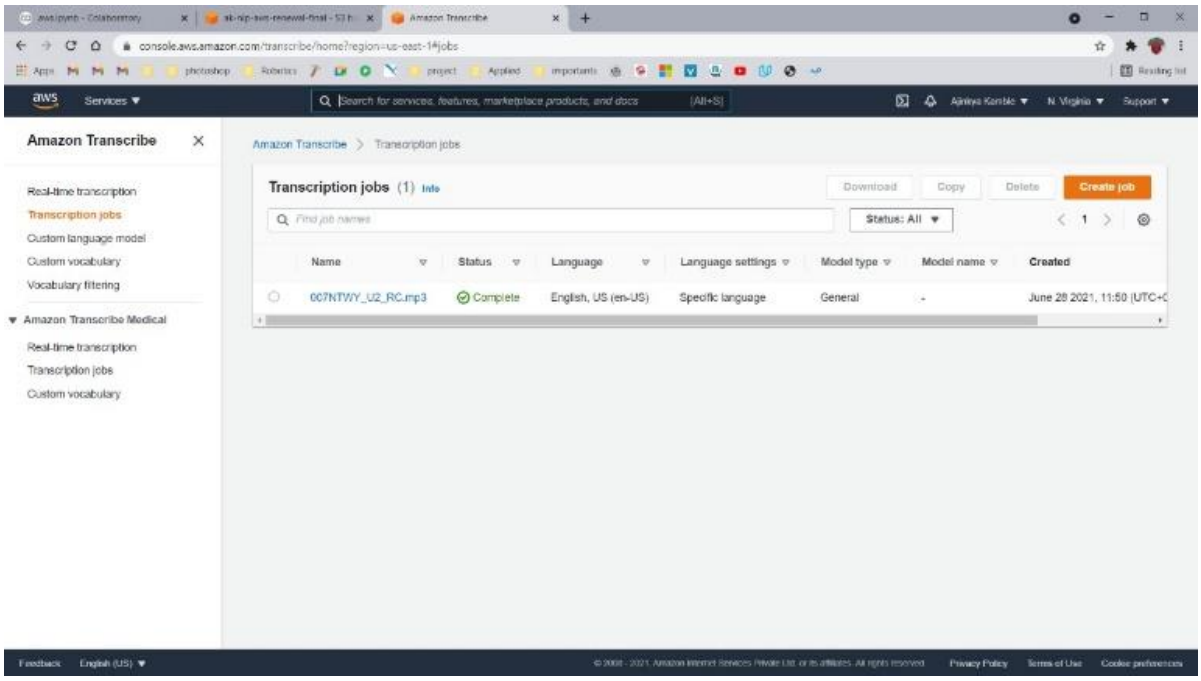
In linguistics, polarity of words, phrases and even sentences are reversed. This is called as negation. For this different linguistic rule are used to find whether negation is occurring. In this opposite polarity will be returned by changing the original meaning of the words. For dealing with this problem most easy approach is to use the most state-of-the-art sentiment analysis techniques.

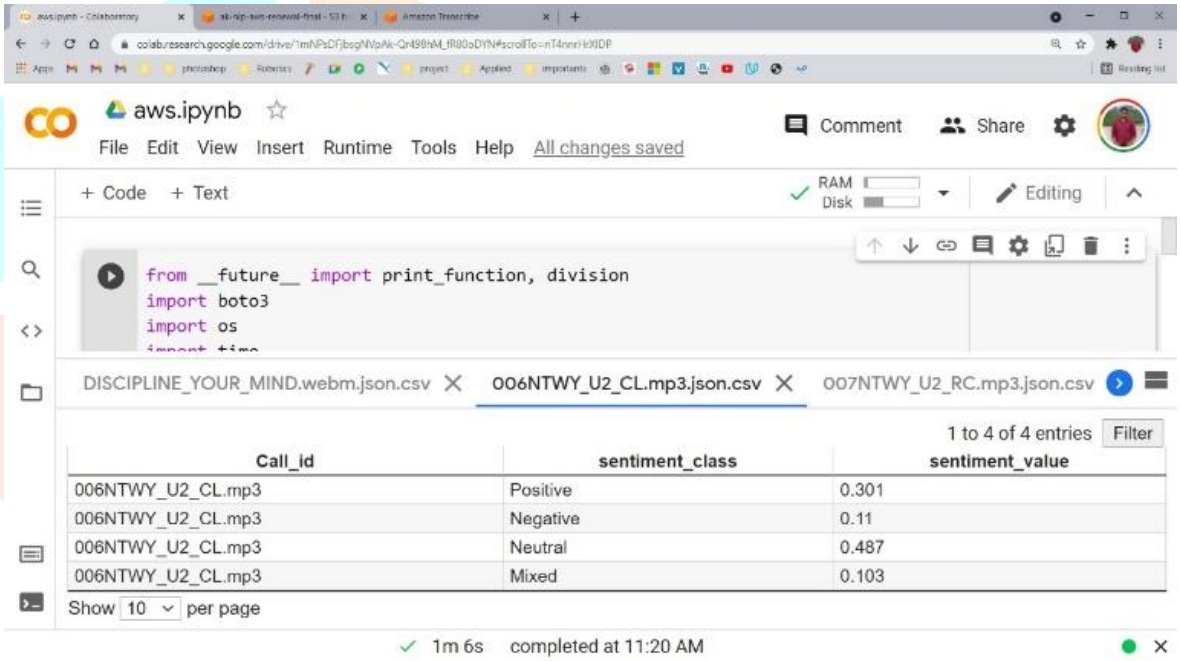
IX.RESULT

In the proposed system we have developed the voice-based sentiment analysis using AWS services. By using the audio files in memory, we can find its sentiments. We can find if the audio is positive negative or neutral. For implementing this we have used the AWS services like AWS transcribe, AWS Comprehend, AWS Lambda, IAS and so on. The system can be used by the organizations to do the analysis on customer reviews so that performance can be increased.
In the following screenshots we have shown the result of how the output will be shown.









X. FURURE SCOPE

A short while ago, Facebook added "Reactions" allowing its users not only to "like" content but also to attach an emoticon, whether it be a heart, an outraged face, angry face... This is a fun, seemingly stupid tool that provides the ordinary social media user a little more freedom with their answers. This, however, offers a completely new data layer that was not previously available to anyone seeking to use social media data to analyse sentiment. The information behind such interactions is increasing and becoming more deep each time major social media platforms update and add more features. In order to get insight into the importance and understanding of the social media interactions and what they tell us about consumers behind screens, the future study will continue to deepen and farther away from the surface of the number of likes, comments, and shares. This prognosis also predicts larger applications for sentiment analysis – brands will continue to use this instrument, but also public opinion, governments, profits, education institutions, and many other organizations.

XI. CONCLUSIONS

Sensing emotions of certain audiences can be important in areas like business growth, social media observations and sentiment analysis. In performing sentimental analysis, we have used AWS services to boost speed and precision. This project leverages AWS features such as Identity Access for Security Management, S3 for Data Storage and Transcribe for audio converting to text.

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Disease Identifier by Symptoms Using Machine Learning

Prof Bhavesh Shah , Jai singh and Akansha Shelar
Suman Ramesh Tulsiani Technical Campus and Facuty of Engineering

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Project Description

Health data wants are dynamical the information seeking behaviour and should be observed around the globe. Challenges long-faced by many of us ar wanting on-line for health information relating to diseases, diagnoses and totally different treatments. If a recommendation system can be created for doctors and medication whereas mistreatment review mining can save lots of a while . In this system like these , the user faces several issues in understanding the core medical vocabulary as the users ar laymen. User is confused as a result of Associate in Nursing oversize quantity of medical data on different mediums ar offered.The idea behind recommender system is to adapt to have an effect on the special needs of the health issues of a user.

Introduction

With the increase in variety of patient and malady once a year medical system is full and with time became expensive in several countries. Most of the malady involves a consultation with doctors to induce treated. With spare information prediction of malady by Associate in Nursing formula will be terribly straightforward and cheap. Prediction of malady by viewing the symptoms is Associate in Nursing integral a part of treatment. In
our project we've got tried accurately predict a malady by viewing the symptoms of the patient.
We have used four totally different algorithms for this purpose Associate in Nursingd gained an accuracy of 2-95%. Such a system will have a awfully massive potential in medical treatment of the longer term. we've got conjointly designed an interactive interface to facilitate interaction with the system. we've got conjointly tried to point out and visualised the results of our study and this project. Database assortment Dataset for this project was collected from a study of university of Columbia performed at New York Protestant Hospital throughout 2004. Link of dataset is given below.
http://people.dbmi.columbia.edu/~friedma/Projects/DiseaseSymptomKB/index.html

In this project customary libraries for info analysis and model creation square measure used. the subsequent

are the libraries utilized in this project.

1. tkinter: It's a typical graphical user interface library of python. Python once combined with tkinter provides fast and straightforward thanks to produce graphical user interface. It provides powerful object-oriented tool for making graphical user interface.

It provides numerous widgets to make graphical user interface a number of the distinguished ones being:

1) Button
2) Canvas
3) Label
4) Entry
5) Check Button
6) List box
7) Message
8) Text
9) Messagebox

Some of these were utilized in this project to make our graphical user interface particularly messagebox, button, label, Option Menu, text and title. victimization tkinter we have a tendency to were ready to produce associate interactive graphical user interface for our model.

2. Numpy: Numpy is core library of scientific computing in python. It provides powerful tools to deal with numerous multi-dimensional arrays in python. it's a general purpose array process package. Numpy's main purpose is to alter two-dimensional homogeneous array. it's tools go from array creation to its handling. It makes it easier to make a n dimensional array simply by victimization np.zeros() or handle its contents victimization numerous different strategies like replace, arrange, random, save, load it conjointly helps I array process victimization strategies like total, mean, std, max, min, all, etc Array created with numpy conjointly behave otherwise then arrays created ordinarily after they square measure operated upon victimization operators like +,-,*,/.

All the higher than qualities and services offered by numpy array makes it extremely appropriate for our purpose of handling information. information manipulation occurring in arrays whereas playing numerous operations got to offer the specifiedd} results whereas predicting outputs require such high operationalcapabilities.

3. pandas : it's the foremost well-liked python library used for information analysis. It provides extremely optimized performance with back-end ASCII text file strictly written in C or python.

Data in python may be analysed with two ways that

- Series
- Dataframes

Series is one dimensional array outlined in pandas accustomed store any information kind.

Dataframes square measure two-dimensional organization utilized in python to store information consisting of rows and columns. Pandas dataframe is employed extensively during this project to use datasets needed for coaching and testing the algorithms. Dataframes makes it easier to figure with attributes and results. Several of

its intrinsic functions like replace were utilized in our project for information manipulation and preprocessing.

4. sklearn: Sklearn is associate open supply python library with implements a large vary of machine- learning, pre-processing, cross-validation and visualisation algorithms. It options numerous easy and economical tools for data processing and processing. It options numerous classification, regression and clump rule like support vector machine, random forest classifier, decision tree, Gaussian naïve-Bayes, KNN to call a number of.

In this project we've got used sklearn to induce advantage of intrinsic classification algorithms like decision tree, random forest classifier, KNN and naïve Thomas Bayes. we've got conjointly used intrinsic cross validation and visualisation options like classification report, confusion matrix and accuracy score.

Models

There square measure four completely different reasonably models gift in our project to predict the illness these square measure

- call tree
- Random forest tree
- Gaussian Naïve Thomas Bayes
- KNN

Decision tree is assessed as a awfully effective and versatile classification technique. it's utilized in pattern recognition and classification for image. it's used for classification in terribly complicated problems condensation to its high ability. it's conjointly capable of participating issues of upper dimensionality. It primarily consists of 3 elements root, nodes and leaf. Roots consists of attribute that has most impact on the end result, leaf tests for price of sure attribute and leaf offers out the output of tree.

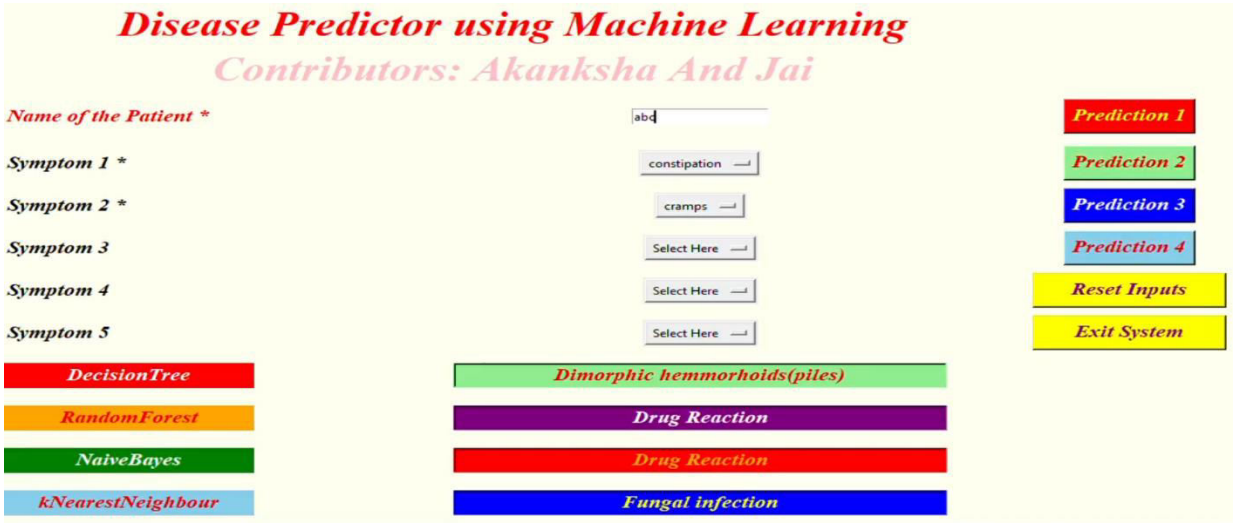
Decision tree is that the initial prediction technique we've got utilized in our project. It offers United States associate accuracy of ~95%.

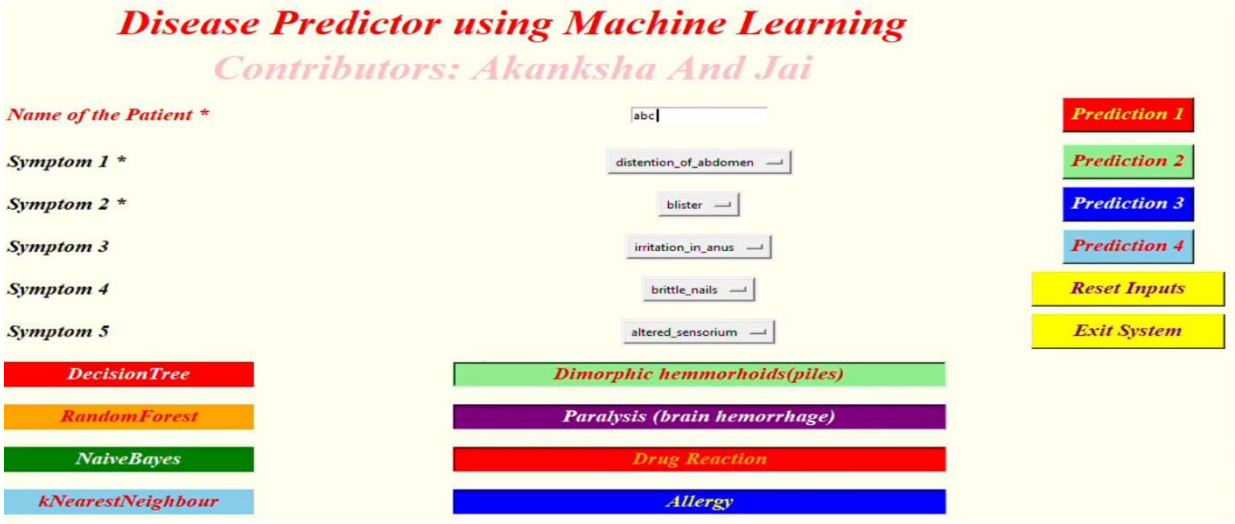
Random Forest rule may be a supervised learning rule used for each classification and regression. This rule works on four basic steps –

1. It chooses random information samples from dataset.
2. It constructs call trees for each sample dataset chosen.
3. At this step each foretold result are compiled and voted on.
4. eventually most voted prediction are selected and be bestowed as results of classification. In this project we've got used random forest classifier with a hundred random samples and therefore the result given is ~95% accuracy. K Nearest Neighbour may be a supervised learning rule. it's a basic nonetheless essential rule. It finds intensive use in pattern finding and data processing.

It works by finding a pattern in information that links information to results and it improves upon the patter recognition with each iteration. We have used K Nearest Neighbour to classify our dataset and achieved ~92% accuracy. Naïve Thomas Bayes rule may be a family of algorithms supported naïve Thomas Bayes theorem. They share a common principle that's each try of prediction is freelance of every different. It conjointly makes associate assumption that options create associate freelance and equal contribution to the prediction.

In our project we've got used naïve Thomas Bayes rule to achieve a ~95% correct prediction.





Conclusions

We embarked on to make a system which might predict illness on the idea of symptoms given thereto. Such a system will decrease the push at OPDs of hospitals and scale back the employment on medical staff. we have a tendency to were booming in making such a system and use four completely different rule to try to to thus. On an average we have a tendency to achieved accuracy of ~94%. Such a system may be mostly reliable to try to to the work. Creating this method we have a tendency to conjointly else the way to store the information entered by the user within the info which can be utilized in future to assist in making higher version of such system. Our system conjointly has an easy to use interface. It conjointly has numerous visual illustration of information collected and results achieved.

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Bluetooth Controlled Metal Detector Spying Robot

[1]Prof. Sonali S. Patil, [2]Mrunali M. Walke, [3]Pragati V. Patil, [4]Atul S. Birge

[1]Professor, Dept. of Computer Engineering, SRTTC FOE, MH, India

[2,3,4]Student, Dept. of Computer Engineering, SRTTC FOE, MH, India

(Savitribai Phule Pune University)

Abstract: In the current period robots play an important role. The purpose of this project is to design a military robot that will detect the enemy. A robot is controlled through Android Application using a Bluetooth module. To detect the status of the robot, the hardware Arduino UNO microcontroller board is used. This microcontroller will sense and control the object. Arduino is very easy to use, and the program is erasable and allows reprogramming from which multifunctional applications can be designed in a robot. Arduino UNO is interfaced with Bluetooth module through UART protocol. An ultrasonic sensor is employed to detect the space of the thing. For example, Bluetooth, Wi-fi and ZigBee innovation to control other gadgets with the help of improved of present-day innovation and Android Smartphone. Bluetooth innovation means to trade information remotely over a short distance utilizing radio wave transmission including highlights to make straightforwardness, insight, and controllability. In this paper we have planned a robot that can be controlled utilizing an application running on an android smartphone, it sends control by means of Bluetooth which is interfaced to the regulator. The regulator can be interfaced to the Bluetooth module however UART convention and shows movements as per the commands received by android application.

Keywords: *Ultrasonic sensor, Arduino UNO, Bluetooth, Metal detector sensor, LCD 16*2, DC Motor, IR Obstacle Detection Module.*

I. INTRODUCTION

In the technology World Robotics plays a vital role. Robotics is designed for manufacturing work purposes to reduce Manpower efforts. There are many applications of Industrial Robots it includes Assembly, packaging, & labeling, product inspection, etc. Similarly, there are many applications of robots that are designed in different fields for different purposes. In this current period robots are also used in computers to do manual work. Robots are mostly used for military application robot which can provide the following functionality: Design a robot that will help to seek the enemy. The design of the robot is in such a way that will ease the development with low cost and will reduce the complexity. The robot is controlled using an application on android device. This application will communicate with the robot via a Bluetooth module which will be fixed on a robot. Since most robots in use these days square measure designed for specific tasks, our goal is to someday build universal robots that square measure versatile enough to try to just about something an individual's will and a lot of. humanoid may be a software stack for mobile devices that features associate in operation system and key applications. Humanoid applications give access to a good vary of helpful libraries and tools which will be accustomed build wealthy applications. Humanoid conjointly includes a full set of tools that has developers with high productivity and deep insight into their applications. Bluetooth may be a technology with associate open normal specification for a frequency (RF)- based short vary property technology that changes the face of computing and wireless communication. The data received by the Blue-tooth module from humanoid sensible phone is fed as input to the controller. Thereby, the controller acts accordingly on the DC motors to maneuver within the entire golem all told the four directions victimization the humanoid phone.

II. LITERATURE SURVEY

After numerous surveys of paper, some of the papers were relevant and convenient to design a robot. The following papers show the application of different technologies: Namita Shinde [1] has developed mobile remote control Robocar design. This paper shows an Android application for controlling the robot via Bluetooth. The DC motor is used for variable speed drives. Wireless connection technologies such as WI-FI, WLANs, Bluetooth. Among this technology, Bluetooth is used in this project which will be connected to the motors and other components of the robot. This application is developed in the software Android studio. RC module is the important working unit of these projects which comprises of Arduino chips, two motor drivers, and a Bluetooth module connected to the circuit Manish Korde [2] In this paper the aim to design a project is to develop a robot that will help to detect the enemy. The

main target is on the latest technology of android. The design of the project includes Arduino UNO which will act like a robot. The commands that are received by the Bluetooth module will give the commands to the microcontroller. This work is done using the command according to the code. A wireless camera is used that can record video, click images provide constant video of the laptop via radio AV receiver. The sensor is used to transmit the status to the Android Application. At the night the obstacle is detected using light installed in front of the camera. Yusuf Abdullahi Badamasi [3] In this paper the working principle of Arduino is shown Arduino Board is used in which main components on board are described. The components onboard include US plug, External Power Supply, Reset button Microcontroller, Analog pins (0-5), Digital I/O pins, In-circuit Programmer, Digital & Analog ground pins, Power pin. The software Arduino IDE is used to control the hardware. This paper shows how the application is written and sent to Arduino and output results. E Amareswar [4] This paper shows Multi-purpose Military Service Robot to fulfill the needs of the military, the police, and armed forces. It includes multiple functions that can be used by armed forces, for spy purposes, provides information in a Hostage situation. Miguel Molino [5] This paper includes the design of a robot that detects an enemy through an ultrasonic sensor to detect the distance of the object and make decisions about its trajectory. This paper shows Arduino Program that can work with Fritzing to create the PCB model is possible. It is shown that AI basic features can be included in the robot that will become a solution in technological developments which is of low cost and will be beneficial for the industry. Kanchan Kamble [6] Design of military surveillance Robot. In this paper controlling a robot is done using a Raspberry PI 3 Processor. In this application video surveillance and metal, detection is used to detect underground landmines. Priyanka Yadav [7] War Field Spying Robot with Wireless Night Vision Camera is shown to develop robot vehicle using RF technology which is used to detect an obstacle in the war field. Hitesh Patel [8] In this paper robot is designed using a night vision wireless camera that is operated by an android application and the robot is controlled using the platform of MIT app inverter. M-Selvam [9] In this paper the design of the robot shows wireless communication that controls both wireless communication between mobile robot android GUI application. The main task performed is to make a surveillance robot that can control by android technology, which gives flexible operation of the robot controller. Ananya Bhattacharya [10] In this paper development of a robot that includes a metal detector sensor to detect metallic objects using Bluetooth Communication is moved in a particular direction with help of Bluetooth technology and is controlled by a mobile. Wireless communication is done between robot and Android Application.

III. METHODOLOGY

The motive of this methodology is to design a successful architecture and system of a robot that will accomplish all the design requirements. At initial stage we decided to design a spying robot. We studied the background work in this field. While studying on this field we came to know many drawbacks as well as limitations and decided to overcome them. After analyzing the problem, we decided to implement new technology by including the metal and ultrasonic sensors along with the Bluetooth technology. We also decide to implement the advanced smartphone technology by operating the robot via. Android Application. Design of Components are described as follows: Bluetooth Module- Bluetooth module HC-0 is used that will transmit the commands to a microcontroller that are received from the Android Application. Arduino UNO Board- Robot is operated by a microcontroller which is programmed with the help of software i.e. Arduino. When two devices are connected, commands are sent to the Bluetooth module and it transmits the command to the Arduino UNO microcontroller.
Sensor- Sensor is used to detect an obstacle, the buzzer alerts the user by LED which is connected with the sensor.
An Android Application on mobile phone will control the robot by giving the commands. As the mobile phone will act as a remote controller for the robot. A simple block diagram is shown in Figure 1 below.

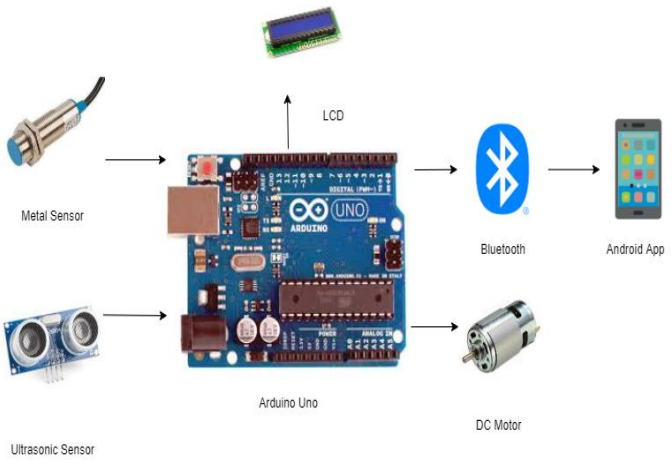

Fig.1 Connection Model

IV. WORKING ON THE PROJECT

The metal detector robot works on the basis 5-volt power supply by using Arduino UNO Controller. The purpose of this robot is for military security. Arduino UNO is the heart of the project which works on 5VDC. It controls the overall circuit to give desired output for provided input commands. In this implemented hardware design metal sensor is used. A metal sensor detects the presence of metal nearby. Metal sensors are useful for finding metal objects. They often consist of a handheld arm to hold, with a sensor

probe which can be swept over the ground or other objects. This is very useful for the military area. Next by using an ultrasonic sensor we can measure the distance by utilizing ultrasonic waves. The sensor head transmits an ultrasonic wave and takes the wave reflected from the destination and ultrasonic sensors measure the distance to the target by measuring the time difference between the radiation and response of the wave. We can see an overview of the model from Fig.1

Command for DC motor

Case 1: Forward

Case 2: Reverse

Case 3: left

Case 4: right

Case 5: stop

The robot works and navigates as per the above commands.

Next use an LCD (16X2) display to display every result from the sensor. The LCD is connected to the Arduino Uno board.

Bluetooth is used for controlling the robot.

In this way, the system work is based on Arduino UNO Controller, sensors, DC motor, and LCD (16X2).

Hardware Design

- *Arduino UNO Controller*

Arduino is an open-source platform that is easy to use on hardware as well as on software. It is a microcontroller board of ATmega328P. Arduino UNO occupies 14 digital input and output pins .6 pins can be operated as PWM output, 6 pins as analog inputs, 16 MHz ceramic resonators, a USB attachment, a reset button, a jackscrew, and an ICSP header. It works on 12V. The board can be provided with power each from the DC power jack, the USB connector, or the VIN pin of the board. The WiFi Module is a self-sustaining SoC with a combined TCP/IP protocol stack that can provide admittance to a WiFi network. Sciences, doing cool stuff with system and elements. Arduino is an Embedded System Devices that got very popular in the maker's community due to its unrestricted and open-source creation.

- *Metal Sensor*

Metal detectors work by broadcasting an electromagnetic field from the sensor to the ground. Any metal deep down will retransmit an electromagnetic field of its own back to the sensor. Usually, metal detectors can identify different metals such as iron, copper, aluminum, tin, nickel, brass, and lead. We have to fix the device that only transmits a specific electromagnetic field to detect the target metal. The metals that are not extremely conductivity of electricity estimated as non-metal or non-detectable objects.

Most metal indicators can identify objects about 4-8″ i.e. (10 - 20 cm) deep. In perfect conditions, a mid-range metal detector can transfer 12-18″ (30-45 cm) underground.

- *Ultrasonic Sensor*

As the name means, ultrasonic sensors cover the distance by using ultrasonic waves. The sensor front transmits an ultrasonic wave and accepts the reflected wave from the target. Ultrasonic sensors estimate the distance to the destination by estimating the time between the radiation and acceptance. The ultrasonic sensor range is 40 to 70 kHz. The frequency defines range and resolution the low frequency produces a great sensing range. The sensor transmits a high-frequency pulse, of 20 kHz to 200 kHz range, to listen to an echo. The pulsation is transmitted in a cone, which is 6° at the top. Ultrasonic sensors work with sound waves, identifying obstacles is not influenced by as many circumstances.

- *DC Motor*

The DC motor is the motor which converts the direct current into the mechanical work. It works on the principle of Lorentz Law, which states that “the current carrying conductor placed in a magnetic and electric field experience a force”.

- *LCD (16x2)*

An LCD is an electronic display module that uses the fluid crystal to produce an apparent image. The 16×2 LCD is a very primary module commonly used in circuits. The 16×2 changes a display of 16 characters per line in two such lines. In this LCD each character is presented in a 5×7-pixel model. Insert your LCD screen into the breadboard

2. Identically insert your potentiometer.

3. Connect 5v and GND from Arduino to the +ve & -ve ports on the breadboard.

4. Connect pins 1 and 16 from the LCD screen to the negative port.

Different Types of LCD Panels

- Twisted Nematic LCDs are the most usually manufactured and applied types of monitors that crossed a wide range of applications.
- IPS Panel Technology.
- VA Panel.
- Advanced Fringe Field Switching.

A 16x2 LCDs display 16 characters per line and there are 2 such lines. In this LCD each character is presented in a 5x7 pixel matrix. This LCD has two registers, they are Command and Data. Register Select (RS): decides whether an instruction RS = 0 i.e (to set up the display) or exact data RS=1 is sent. RW=0 i.e Read/Write writes to the LCD. When RW=1; It Reads from the LCD. A factory reset does not delete the monitor's language setting. After you perform a factory reset, you will need to re-enter your method settings they are contrast, brightness, etc.

Software Design

The main components that we are going to focus under software designing are Algorithm building, developing the Android application and finally detection of the metal component. By using the advanced technology of an Android smartphone, we achieve are desired goals. The details of each software component are as given below.

- *Algorithm*

The general algorithm has the main steps to accomplish the general tasks, which are "start", "stop" and "detection of metal". The program will begin with the "start" step where the Bluetooth module HC-05 connected to Arduino Uno will pair with the android application. The robot moves as per the instruction, given by the Android Application. During this step, the robot moves, and the metal detector checks if the object is a metallic object or not by passing it over the metal detector. In case, if a metallic object is countered by the metal detector, a beep sound will be produced by the beeper, and the movement of the robot can be stopped. Otherwise, the robot will continue to move until it detects any metallic object, or if it detects a metal object the movement robot will be stopped Pseudo Code:

$1 - \ OrderVar_{Computer} \rightarrow UltrasonicFunc_{Robot}$
$2 - UltrasonicFunc(OrderVar_{Computer})$:
  a) $sendFunc() \rightarrow UltrasoundVar$
  b) $waitFuc()\ to\ confirm\ sound\ receiveing$
$3 - DistanceFunc(sending_{time}, receiving_{time}) \rightarrow \mathbf{DistanceVar}$
$4 - DistanceVar_{Robot} \rightarrow DistanceVar_{Computer}$
$5 - if(DistanceVar < 30cm)$:
  a) $\mathrm{AutoStopFunc}_{Robot}()$
  b) $SendAlarmFunc_{Robot}()$

- *Android Application*

Android is a very familiar word in today's world. Millions of devices are running on Android OS and millions are being developed every day [4]. **Android Studio** is an application that is used to develop the android application that controls the robot. The first phase of application design goes through the writing the code as per our requirements. The second phase is coding for connecting the Bluetooth of our device with robot.

In this app development, the **Android Studio** provides a versatile opportunity to develop a customized application that starts with establishing a Bluetooth connection by searching the available Bluetooth devices and make pair with them. For robotic movement, a character is assigned for each operation such as Forward- "F", Backward- "B", Left- "L" and Right- "R".

- *Detection*

As the metal sensor detects any obstacles, there are two situations to detect obstacles and calculate the distance. In the first scenario when obstacles are located in the front of the robot pathway and the detector would send an alarm if the robot revealed a metal. Besides, the robot detector will self-stop and then gives a signal to the computer. The computer will send the command to the robot, and that will run a function in the robot, and the detector will operate the three Ultrasonic sensors step by step, and send the proceeds to the computer, and the computer will show which the best way to navigate. This mechanism is used to identify obstacles in a way as well. This method is most important for detection, deactivating, extracting, and demining. The detector can discover the most suited route if there is more than one path in the mapping area it will send results to the computer to make the best decision in a particular way.

V. Flow Chart of Proposed Method

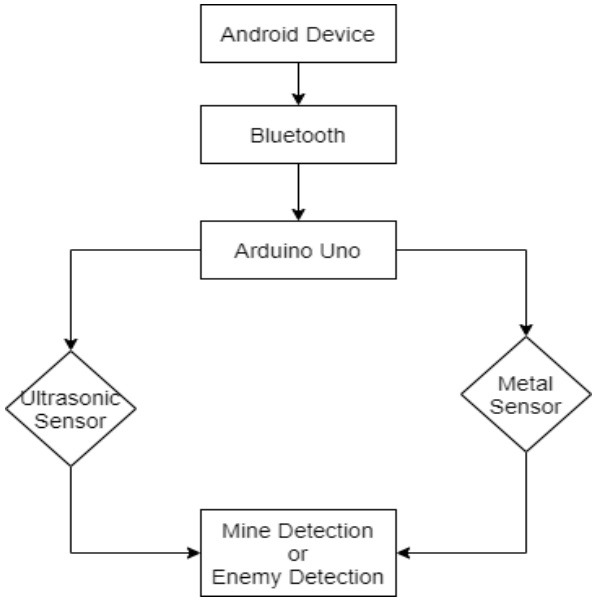

Fig.2 System Work Flow

From Fig.2 we can observe that the robot is develop and designed which is capable of detecting the metal using an android application. Bluetooth device is interfaced with the control unit for sensing the signals that are transmitted by the android app. The data is transmitted to the control units that guide the robot in different directions. A microcontroller (ATmega328P) is used as a control device in the project. Distant operation is accomplished by any smartphone with Android OS, upon a GUI (Graphical User Interface). We applied the HC-05 module to pair the Android application with the robot. Communicating end uses an android application device through which commands are conveyed to the robot. At the receiver end, these commands are used for controlling the robot in any direction such as forward, backward and left, or right. The motor driver L293D IC is interfaced with the control unit that operates the motor. Serially transmitted data from the android application is collected by a Bluetooth receiver interfaced to the microcontroller.

VI. Conclusion

Android is a mobile phone system that can build a strong remote-control system. While developing such a system we need to communicate with the robot, this software requires a Bluetooth link. The Multi-Purpose Military Service Robot is built to facilitate secure two-way communication between the Android phone and the robot in such a way that its needs can be fulfilled by the military, police, and armed forces. It has numerous implementations which can be found in diverse situations and environments. It can, for instance, be used for military purposes by the armed forces in one region, while it can be used for surveillance purposes in another. The mines can also be disposed of once detected by the robot.

VII. Future Scope

This project can be enhanced in the future by implementing new and advanced technologies. By adding the suspension to the robot will help in traveling through an uneven surface. We can add new sensors e.g., a gas sensor (MQ2 Gas Sensor) and also a robotic arm that will easily pick and move the object from one place to another. Also, solar cells can be added instead of the regular battery for continuous power production.

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An Experiment to Determine Student Performance Prediction using Machine Learning Algorithm

Bhavesh Shah[1], Tushar Nimse[2], Vikas Choudhary[3], Vijendra Jadhav[4]
Assistant Professor, Department of Computer Engineering[1]
Students, Department of Computer Engineering[2,3,4]
Suman Ramesh Tulsiani Technical Campus, Pune, Maharashtra, India

Abstract: *In the current scenario, this is difficult to predict students' future results based on his/her current performance. As the outcome of this, the teacher can advise him/her to overcome the poor result, and also it can coach the student. By finding out the dependencies for final examinations. The system suggests to students about subject/course selection for the upcoming semester and act as roles of adviser/teacher. Due to improper advice and monitoring a lot of student's futures in dark. This is difficult for a teacher to analyze and monitors the performance of each and every student. The system can give feedback to teachers about how to improve student performance. This paper carried out a literature review from the year 2003 to 2021. The system predicts his/her future results by applying Machine Learning Algorithms like k-Nearest Neighbor (k-NN), Support Vector Machine (SVM), and Naive Bayes at an earlier stage.*

Keywords: SVM , Dataset, ML, Training Module.

I. INTRODUCTION

Predicting automated student performance is an important task due to the large amount of data in the educational database. This job is being looked after by the Educational Data Mining (EDM). EDM develops methods to detect data obtained from the educational environment. These methods are used to understand students and their learning environment. Educational institutions are often curious about how many students will pass / fail for the required number of students. Previous studies have shown that many researchers focus on choosing the right algorithm for the right classification and neglect to solve problems that occur during the data mining phase, such as high data measurement, class imbalances, and classification errors. Reducing the accuracy of the model reduced the problems.

Many well-known classification algorithms have been implemented in this domain, but this paper proposed a model of student performance estimates based on the tree classification of supervised learning decisions. In addition, an integrated method is applied to improve the efficiency of the classifier. Ensemble Methods Approach has been developed to solve classification, prediction problems.

II. LITERATURE SURVEY

[1]Automatic Student performance prediction is a crucial job due to the large volume of data in educational databases. This job is being addressed by educational data mining (EDM). EDM develop methods for discovering data that is derived from educational environment. These methods are used for understanding student and their learning environment. The educational institutions are often curious that how many students will be pass/fail for necessary phases such as data high dimensionality ,class imbalance and classification error etc. Such types of problems reduced the accuracy of the model. Several well-known classification algorithms are applied in this domain but this paper proposed a student performance prediction model based on supervised learning decision tree classifier. In addition, an ensemble method is applied to improve the performance of the classifier. Ensemble methods approach is designed to solve classification, predictions problems. This study proves the importance of data preprocessing and algorithms fine-tuning tasks to resolve the data quality issues. The experimental dataset used in this work belongs to Alentejo region of

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Portugal which is obtained from UCI Machine Learning Repository. Three supervised learning algorithms (J48, NNge and MLP) are employed in this study for experimental purposes. The results showed that J48 achieved highest accuracy 95.78% among others..arrangements. In previous studies, it has been observed that many researchers have intension on the selection of appropriate algorithm for just classification and ignores the solutions of the problems which comes during data mining recognition systems will be done.It will improve the performance of the legitimate traffic.

[2] This paper aims to cut back the manual procedures concerned within the performance analysis and analysis of scholars, by automating the method right from retrieval of results to pre-processing, segregating, and storing them into information. We additionally expect to perform examination on immense measures of information viably and encourage simple recovery of different sorts of data identified with understudies' execution. We give a degree to build up to information stockroom wherein, we can apply information mining methods to perform different sorts of examinations, making a learning base and use it further, for forecast purposes

[3] For a productive and a good life, education is a necessity and it improves individuals' life with value and excellence. Also, education is considered a vital need for motivating self-assurance as well as providing the things are needed to partake in today's World. Throughout the years, education faced a number of challenges. Different methods of teaching and learning are suggested to increase the learning quality. In today's world, computers and portable devices are employed in every phase of daily life and many materials are available online anytime, anywhere. Technologies like Artificial Intelligence had a surprising evolution in many fields especially in educational teaching and learning processes. Higher education institutions have started to adopt the use of technology into their traditional teaching mechanisms for enhancing learning and teaching. In this paper, two datasets have been considered for the prediction and classification of student performance respectively using five machine learning algorithms. Eighteen experiments have been performed and preliminary results suggest that performances of students might be predictable and classification of these performances can be increased by applying pre-processing to the raw data before implementing machine learning algorithms.

[4] Predicting students' performance is one of the most important topics for learning contexts such as schools and universities, since it helps to design effective mechanisms that improve academic results and avoid dropout, among other things. These are benefited by the automation of many processes involved in usual students' activities which handle massive volumes of data collected from software tools for technology-enhanced learning. Thus, analyzing and processing these data carefully can give us useful information about the students' knowledge and the relationship between them and the academic tasks. This information is the source that feeds promising algorithms and methods able to predict students' performance. In this study, almost 70 papers were analyzed to show different modern techniques widely applied for predicting students' performance, together with the objectives they must reach in this field. These techniques and methods, which pertain to the area of Artificial Intelligence, are mainly Machine Learning, Collaborative Filtering, Recommender Systems, and Artificial Neural Networks, among others.

III. PROPOSED SYSTEM

The main purpose behind this project is to implement a system based on Desktop application to predict the student performance. So one Desktop application based on machine learning is used to predict the performance of student to get selected in company or need of classes to improve student chances to be get selected in company.

- Students-: Enter previous year marks for performance detection. Or Enter 10th or 12th marks for guidance.
- Teacher -: Enter particular student marks to checking students performance

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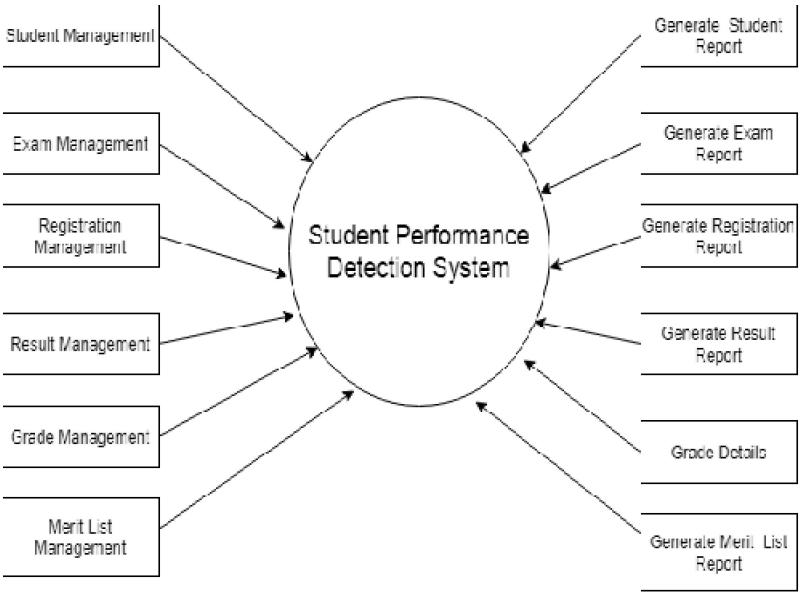

IV. DATA

We collect student's data from university or collage to predict performance of student

V. ALGORITHM

5.1 SVM

We are using Support Vector Machine (SVM) in our project to detect predator. It is a supervised machine learning model that divides dataset into different classes on hyperplane which is used to find maximum margin. We'll feed labeled data to train our model, in prediction phase labeled data will get matched with new data with the help of the SVM algorithm in order to give desired output.

VI. RESULTS

We implemented system for students 10th,12th, and Engineering students.
We implemented some module-:

1. Students Registration: In this module students who want to check there performance they first have to registered with us with few information like Name, mail, contact no
2. Students Login: In this module we will check whether students is valid or not.
3. Submit Marks: In this module we will take students marks of 10th,12th, and engineering students and submit our training module to predication of performance
4. Result: In this module we will show two types of result if student's performance is low then we will show the solution to students for improvement. Another case if student's performance is good then we will show the placement result of students.

VII. CONCLUSION

In this paper present successfully implemented shows that academic performances of the students are primarily dependent on their past performances. Our system predicate students performance and placement of students. Further, we confirmed that the performance of neural networks increases with increase in dataset size. Machine learning has come far from its nascent stages, and can prove to be a powerful tool in academia. In the future, applications similar to the one developed, as well as any improvements thereof may become an integrated part of every academic institution.

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Review on Pipe Cleaning Robot

Prof. Nilesh Dhumal
nilesh.dhumal@srttc.ac.in
Professor, Department of Mechanical Engineering
Suman Ramesh Tulsiain Technical Campus Kamshet,
Postal Code-410405.

ABSTRACT

We had researched and studied the pipe cleaning robot concepts and we had try to make some upgrades in it. As we know most sewage line gets overflow due to the hard materials stuck inside the pipes. It create blockage inside the pipes and reduces the flow of sewage water. For this operation of clearing the blockage of pipes different type's methods are used and sometimes blockage of pipes cannot be found under the ground. A man can only assume the blockage location but it is very hard to find the exact blockage location. Which increase man power and also waste of time in digging the roads. For simple and fast work we had design a robot which can perform cleaning as well as locating the blockage underground inside the pipes. The model we are building is for explaining how we can use a robot to clean pipes which consist of sludge's in inner layers of pipes and also to detect blockage inside the pipe line. This prototype model can also explain how we can use this robot to check the sewage pipe lines blockage and after detection we can apply the suitable operations to that section of the pipe only. This reduces the time and energy of workers which is wasted for digging the roads by an assumption of blockage underground.

Keyword: Pipe Cleaning Robot, sewage pipe lines.

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I. INTRODUCTION

The use of robots is more common today than ever before and it is no longer exclusively used by the heavy production industries the inspection of pipes may be relevant for improving security and efficiency in industrial plants. These specific operations as inspection, maintenance, cleaning etc. are expensive, thus the application of the robots appears to be less in use. Pipelines which are tools for transporting oils, gases and other fluids such as chemicals, have been employed as major utilities in a number of countries for long time. Recently, many troubles occur in pipelines, and most of them are caused by aging, corrosion, cracks, and mechanical damages from the third parties. Currently, the applications of robots for the maintenance of the pipeline utilities are considered as one of the most attractive solutions available should have high magnetic susceptibility and should be good conductor of electricity. The materials are copper and so on. But aluminum is chosen as the materials for the linkages and central body because of its much-desired properties. Pipe inspection is necessary to locate defects due to corrosion and wear while the pipe is transporting fluids. This ability is necessary especially when one should inspect an underground pipe. In this work, Pipe Inspection Robot (PIR) with ability to move inside horizontal and vertical pipes has been designed and fabricated. Inspection robots are used in many fields of industry. One application is monitoring the inside of the pipes and channels, recognizing and solving problems through the interior of pipes or channels. Automated inspection of the inner surface of a pipe can be achieved by a pipe cleaning robot. The materials used for this machine are light and rigid. Different materials can be used for different parts of the robot. For optimum use of power the materials used should be light and strong. Material should be ductile, less brittleness, malleable, and high magnetic susceptibility.

II. PROBLEM STATEMENT

- Now a day's many of industries used different diameter pipes for different application like to

carry chemicals, high pressure steam and gasess hence there may be chances of problems like corrosion, leakages.

- It is not possible to avoid all these problems manually.
- The conventional method is very difficult and tiring.

III. LITERATURE REVIEW

MA Wenqi, XIAO Zhiyong, ZHANG Meixia Numerical Simulation of Cavitation Washer in Pipe Cleaning Cavitation, Water jet can take advantage of the power generated from vacuole rupture to enhance the performance of the jet. Studies have shown that the pressure of the capitation jet is 8.6-124 times as high as continuous pressure in the same pump conditions; therefore the cavitation jet is widely utilized in cutting, cleaning and descalingss. The study focused on blade-type cavitation washer, using three-dimensional periodic modeling, combined with structured and unstructured grids, analyzed the two-phase Signal cavitation model in a finite volume CFD way. By taking turbulence intensity and non-condensable gas into account, the cleaning mechanism was analyzed and flow characteristics were gain. The results show that the cavitation effect mainly produced in two zones, the blade Tip area around the pipe wall and the double-blade staggered narrow gap. Throttling effect is the main cause of the cavitation effect. The cavitation number is used to evaluate the strength of the cavitation, and the cavitation number is between 0 and 0.5.

Yoon-Gu Kim1, Dong-Hwan Shin1, Jeon-Il Moon1, Jinung An1 : Design and Implementation of an Optimal In-pipe Navigation Mechanism for a Steel Pipe Cleaning Robot, This study focuses on the design and implementation of an optimal pipe navigation mechanism and a driving unit to overcome the variable situations inside steel pipes. It also offers adaptability to different pipe diameters. The important problems considered in the design and implementation are a self-sustaining property when in the center of a pipe, optimal navigation ability to adapt to in-pipe unevenness, the capability to remain stable without slipping in pipes, and the efficient operation of cleaning equipment. The robot developed here based, on carefully determined design specifications, was tested to verify the performance of its navigation mechanism and driving ability. In addition, a control system was developed for the test. The ultimate goal is the application of the verified in-pipe cleaning robot to industrial and practical applications.

Andrei ȘTEOPAN, Mihai STEOPAN & Andrei NICU: Competitive Design and Mockup of a Modular Pipe Cleaning Mobile Equipment, Designing application oriented products require dedicated approaches. One possible approach is the use of competitive design tools and techniques in the conceptualization phase of the product. In this paper the authors present the development process for a mobile platform meant for cleaning / maintenance operations of flatbed ventilation tubing. Special attention was given to the main 2 mechanical modules: the motion module and the ventilation module.

José Saenz, Fraunhofer IFF, Norbert Elkmann, FraunhoferIFF, Thomas Stuerze, Fraunhofer IFF, Sven Kutzner,Fraunhofer IFF and Heiko Althoff: Robotic systems for cleaning and inspection of large concrete pipes, Concrete pipes are used in a variety of areas for conducting media underground (e.g. wastewater, cooling water,etc.) or for transportation purposes. Regular cleaning and inspection is required to ensure the static integrity of the pipe And to insure against the problems associated with failure of the pipe. In this paper, the SVM-RS system for cleaning and inspecting large concrete pipes will be presented. Various aspects of the robot including its kinematics, the cleaning system, the sensor system, the media supply, communications, as well as the control system and operator interface will be discussed in detail. The use of robust robotics for accurate positioning of high-pressure water Nozzles in combination with non-destructive sensing techniques for navigation and inspection during normal pipe operation allows for a new standard in high-quality pipe cleaning and inspection. The latest cleaning and inspection results from tests in real sewers will be presented.

IV. METHODOLOGY

Methodology used for whole processing of Robot is given below; this methodology gives way about how work is to be carried out in systematic way. It is standard process of describing process, how it is done in simplest manner.

- Prepare Research Paper
- Collection of Data
- Numerical Calculation for Arrangement
- Design Calculation Of arrangement of Components
- Develop Prototype of model
- Testing and Analysis
- Final Result
- Conclusion

V. DESIGN

Design consists of application of scientific principle, technical information, and imagination for development of new mechanism to perform specific function with maximum economy and efficiency. Hence careful design approach has to be adopted. The total design work has been split into two parts.

1. System design
2. Mechanical design

SYSTEM DESIGN:

System design is mainly concerns the various physical constraints and ergonomics, space requirements, arrangement of various components on frame at system, man-machine interaction, no. of controls, position of controls, working environments, of maintenance, scope of improvement, weight if machine from ground level, total weight of machine and a lot more. In system design we mainly concentrated on the following parameter:-

- System selection based on constraints

Our machine is used in small-scale so space is major constrain. The system is to be very compact so that it can be adjusted in small space.

- Arrangement of various components

Keeping into view the space restrictions all components should be laid such that their easy removal or servicing is possible. Every possible space is utilized in component arrangements.

- Man machine interaction

Friendliness of machine with the operated that is operating is an important criterion of design.

- Chances of failure

Losses incurred by owner in case of any failure are important criterion of design. Factor of safety while doing design should be kept high so that there are less chances of failure. Moreover periodic maintenance is required to keep unit healthy.

- Servicing facility

Layout of components should be such that easy servicing is possible. Those which require frequent servicing can be easily disassembled.

- Scope of future improvement

Arrangement should be provided in such way that if any changes have to be done for future scope for improving efficiency of machine.

- Height of machine elements from ground

All the elements of the machine should be arranged to the height from where it is simple to operate by operator. Machine should be slightly higher than the waist level, also enough clearance should be provided from the ground for cleaning purpose.

- Weight of machine

Total weight depends on the selection of material of all components as well as their dimensions. Higher weight will result in difficulty in transportation; it is difficult to take it to workshop because of more weight.

MECHANICAL DESIGN:

In mechanical design the components are listed down and stored on the basis of their procurement, design in two categories namely.

1. Designed parts
2. Parts to be purchased

Mechanical design phase are very important from the view of designer as whole success of project depends on the correct design analysis of the problem.

Many preliminary alternatives are eliminated during this phase. Designer should have adequate knowledge about physical properties of material, load stresses and failure. He should identify all internal and external forces acting on machine parts. These forces may be classified as,

a) Dead weight forces
b) Friction forces
c) Inertia forces
d) Centrifugal forces
e) Forces generated during power transmission etc.

Designer should estimate these forces very accurately by using design equations. If he does not have sufficient information to estimate them he should make certain practical assumptions based on similar conditions which will almost satisfy the functional needs. Assumptions must always be on the safer side. Selection of factors of safety to find working or design stress is another important step in design of working dimensions of machine elements. The correction in the theoretical stress values are to be made according in the kind of loads, shape of parts & service requirements Selection of material should be made according to the condition of loading shapes of products environment conditions & desirable properties of material provision should be made to minimize nearly adopting proper lubrications method.

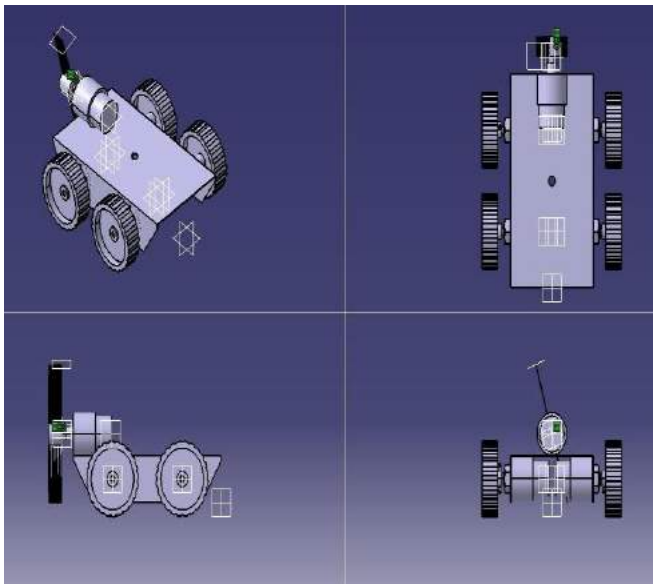

Fig No 1: Isometric View

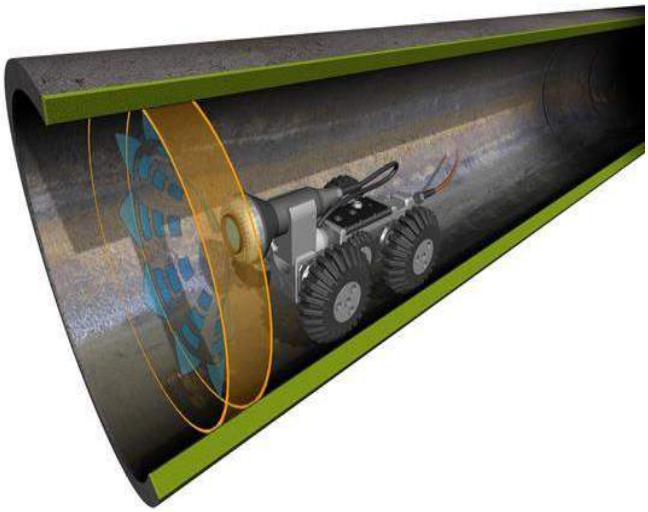

Figure no 2. view of ultra-sonic sensor work

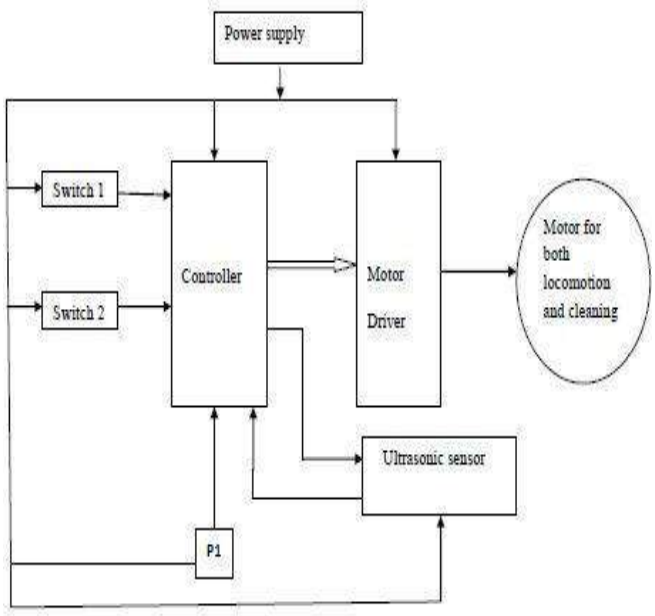

Figure no. 3. Control circuit

VI. CONCLUSION

This project is successfully designed, implemented and tested. The main function for this project was achieved. Everything that we learned was applied in this final year project. Students can improve the skills to make mechanical and electronic designs that very useful after graduate and in working life after that. Robot development, it is hoped that this robot can be reconstructed with some modification to improve the abilities and to provide benefits in future also be able to be marketed or commercialized.

Robot development, it is hoped that this robot can be reconstructed with some modification to improve the abilities and to provide benefits in future also be able to be marketed or commercialized.

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OVERVIEW OF INDIAN ENERGY POTENTIAL AND TYPES OF SOLAR POWER GENERATION SYSTEMS

Suraj Ghatage*1, Vivek Tiwari*2, Kiran Boble*3, Jitendra Satpute*4

*1UG student, Dept. of Mechanical Engineering, Suman Ramesh Tulsiani Technical Campus, Pune, Maharashtra, India.

*2UG student, Dept. of Mechanical Engineering, Suman Ramesh Tulsiani Technical Campus, Pune, Maharashtra, India.

*3UG student, Dept. of Mechanical Engineering,Suman Ramesh Tulsiani Technical Campus, Pune, Maharashtra, India.

*3Assistant Professor, Dept. of Mechanical Engineering, Suman Ramesh Tulsiani Technical Campus, Pune, Maharashtra, India.

ABSTRACT

In the present work, an attempt is made to investigate energy capacity of India. The in-depth study is carried out to identify conventional and non-conventional energy sources available in India. Considering energy scrutiny, renewable energy sources plays important role and has the potential to fulfill energy requirement of the globe. Hence in the present work, solar energy has been discussed thoroughly and its classification is presented. It was observed that, India has very limited sources of conventional energy and renewable solar energy is one of the feasible solutions to fill energy gap. Solar energy can be recovered by various means such as flat plate collector, compound parabolic collector, Fresnel reflector, dish collector by thermal means whereas PV collector by electrical means. The study conclude that solar energy in India has potential to keep pace with increasing market demand but in further research and development program for effective techno-commercial popularity.

I. INTRODUCTION

A hybrid energy system may be a system that uses 2 or a lot of power sources so as to maximise the general potency. A typical hybrid system within the building is that the electrical phenomenon / thermal (PV/T). Standard electrical phenomenon systems use only the photons from lightweight to get a current and warmth from radiation tends to extend the temperature of photovoltaic modules and cut back its effectiveness. Against by the PV/T systems use not solely lightweight however additionally the thermal energy generated by radiation, the extraction of energy via a heat transfer fluid at a similar time permits for area heating, cool the electrical phenomenon panels and increase yield.

Conventional Sources Of India

The energy that comes from the resources that may be regenerated and don't eat up over the time is believed as renewable energy. It's a clean energy that couldn't injury the standard of life. Fossils fuels too unit of activity on paper renewable however on a awfully very whereas – scale and if continued to be exploited at the moment rates then these resources may eat up at intervals the around future. Therefore, in reality, renewable energy is energy from a supply that's replaced rapidly by a activity and isn't subjected to depletion throughout a human time – scale. knowledge on reserves of non-renewable sources of energy like coal, lignite, petroleum, fuel and collectively the potential for generation of renewable energy sources is also a pre - requisite for assessing the country's potential for meeting its future energy desires. The changes at intervals the reserves over time indicate that analysis and development going into the invention of recent reserves and conjointly the pace of their exploitation. They collectively facilitate in devising effective conservation and management strategies for optimum utilization of these resource. The derived reserve of stuff as on thirty one.03.2010 in line with Energy Statistics 2011 (Ministry of Statics and Program Implementation, GOI) was forty billion tones, of that eightieth was at intervals the southern State of state. the increase at intervals the derived reserve of stuff throughout the year a try of009-10 was a pair of.1%, Rajasthan accounting for the utmost increase of 5.5%. The derived reserves of oil and gas in Asian nation as on thirty one.03.2010 stood at 1206 million metric tons (MMT) and

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1453 billion cuboid meters (BCM), severally. Geographical distribution of oil indicates that the utmost reserves unit at intervals the Western Offshore (46%) followed by province (23%),whereas the utmost reserves of gas unit at intervals the Western Offshore (40%) followed by japanese offshore (29%). the increase at intervals the derived reserve of oil throughout 2009-10 was fifty six, with Tamilnadu accounting for the highest increase of eighty 5.3% followed by Gujarat (73.3%). simply just in case of gas, the increase at intervals the derived reserves over the last year was time unit that's that the foremost contribution to this increase. luckily Asian nation is blessed with style of renewable energy sources, the foremost ones being biomass, biogas, the sun, the wind, geothermal, and small hydropower. (large hydro power is to boot renewable energy in nature but has been utilized everyplace the world for many decades, and is usually not enclosed in terms 'new and renewable provide of energy'). Future process crucially depends on the long – term availability of energy from sources that unit low cost, Coal and fuel unit of activity the foremost wide used non-renewable energy resource for energy generation in gift state of affairs. At currently coal alone accounts for regarding seventieth of India's electricity offer however isn't setting friendly. The uncontrolled emission of greenhouse emission finally finishes up in international natural process that is that the foremost wrongdoer behind typical non-renewable energy resource. The developing world community is fighting deficiency of power. Most of the power comes from non – renewable typical energy resources that unit of activity decreasing day by day. so to combat this recoil, renewable energy resources need to be used. With high method rates and over FTO of the world's population, country may even be a very important client of energy resources (4.04 you're taking care of international energy consumption). India, at 1.2 billion individuals, is that the second most inhabited country at intervals the world. country ranks fifth at intervals the world in total energy consumption, and is projected to surpass Japan and Russia to become the world's third biggest energy shopper by 2030 (EAI).Commercial energy demand will grow at four.5% each year till 2020, as economy grows at seven to eight annually over this era.

Renewable Sources of India

India is one all told the countries with big production of energy from renewable sources. As of twenty seven November 2020, thirty eighth of India's place in electricity generation capability is from renewable sources (136 GW out of 373 GW) at intervals the Paris Agreement land has committed to associate supposed across the country Determined Contributions target of achieving ordinal of its total electricity generation from non-fossil fuel sources by 2030. The country is aiming for even further formidable target of fifty seven of the whole electricity capability from renewable sources by 2027 in Central Electricity Authority's strategy design in step with 2027 design, land aims to possess 275 GW from renewable energy, seventy a try of GW of electricity, fifteen GW of energy and nearly 100 GW from "other zero emission" sources. Government of land has place along set a target for installation of face star comes (RTP) of forty GW by 2022 in conjunction with installation on face of homes. Asian nation incorporates a sturdy manufacturing base in alternative energy with twenty manufactures of fifty 3 completely fully fully totally different rotary engine models of international quality up to variety of MW in size with exports to Europe, the North yankee country and fully fully totally different countries. Wind or star PV paired with four-hour battery storage systems is already cost-competitive, whereas not grant, as a provider of dispatch in Associate in Nursing extremely position generation with new coal with new coal and new gas plants in land.

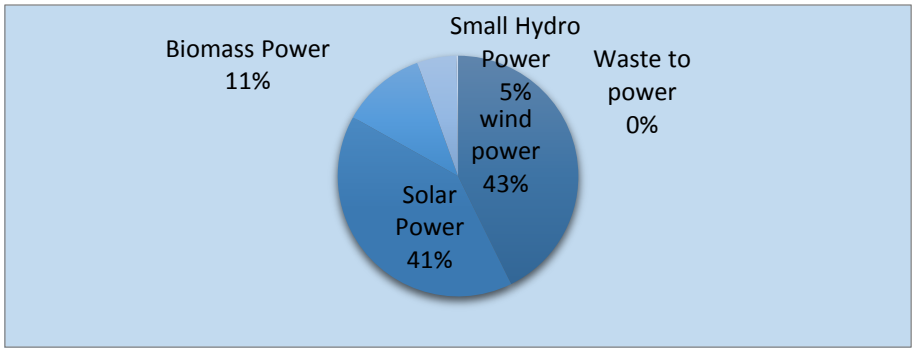

Fig.-1: Installed grid interactive renewable power capacity in India as of 30 September 2020 (excluding large hydro)

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II. CLASSIFICATION OF SOLAR ENERGY COLLECTOR

Since greenhouse impact due to intemperance of fuel consumption, is the reason of international warming, makes an attempt are created for substitution of alternative energy for coal, oil and fossil fuel in last decades. There square measure completely different approaches to profit the sun energy and convert it to thermal and electrical energy such as electrical phenomenon (PV) Panels, star thermal collectors, Concentrating Plant (CSP), star cookers. In this regard star collector's area unit categorized into 2 main types:

a) Stationary collectors and b) Sun following collectors

1. The Flat plate Collector.

The performance of a flat-plate collector is not therefore difficult, it is simply primarily based on radiation passing a transparent layer so assault associate absorbent material layer that absorbs the sun energy as heat. The absorbed heat is then transferred to a form of medium fluid that would be water, water and liquid additive, or air within the tubes to extend its temperature for direct thermal use. The clear layer among the initial order is employed to prevent loss of mirror of the sun; as a results of it doesn't cross the radio emission lights.

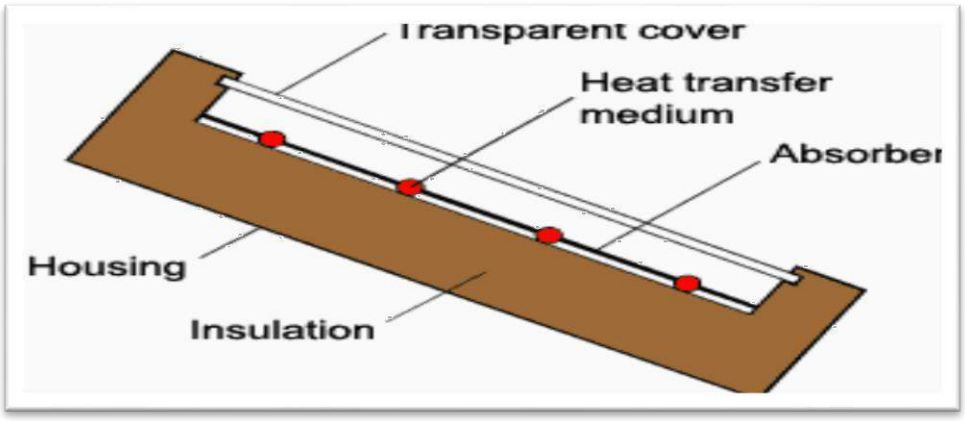

Fig-2: Flat Plate Collector

Compound parabolic Collector

Compound parabolic collectors square measure designed by Winston these reasonably collectors have the power to soak up nearly all the sunshine emitted to the mouth of them. These collectors square measure ready to settle for an oversized proportion of diffuse radiation incident on their apertures and concentrate it while not chase the sun. Schematic diagram of the collectors square measure illustrated in Figure

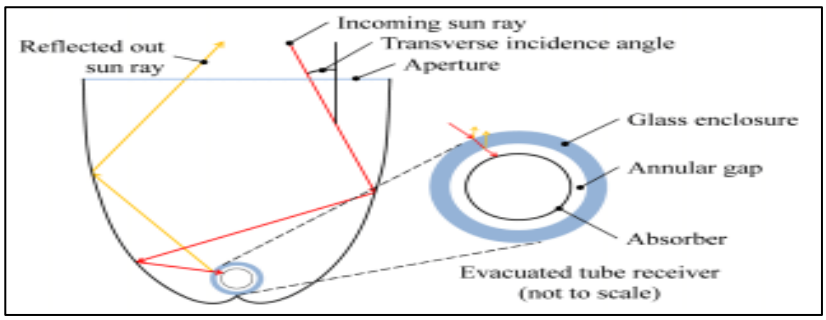

Fig-3: Compound Parabolic Compound [3]

This collector a bit like flat-plate collectors need to be mounted throughout a particular angle stated as acceptance angle basedOn its position, although some kinds of compound parabolic collector can track the sun light-weight. For stationary CPC collectors mounted in this mode the minimum acceptance angle is equal to forty seven degrees. This angle covers the declination of the sun from summer to winter elevation.except for designing a compound parabolic Compound collector. There unit of measurement such a giant quantity of theoretical and numerical.

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Evacuated tube Collectors

Since the flat-plate collectors don't have a sensible performance in cloudy and cold weather due to the condensation of wetness on surface of the plate, exhausted heat pipe collectors wherever fictitious. These star collectors contain a heat pipe within a vacuum- sealed tube, as shown in Figure.

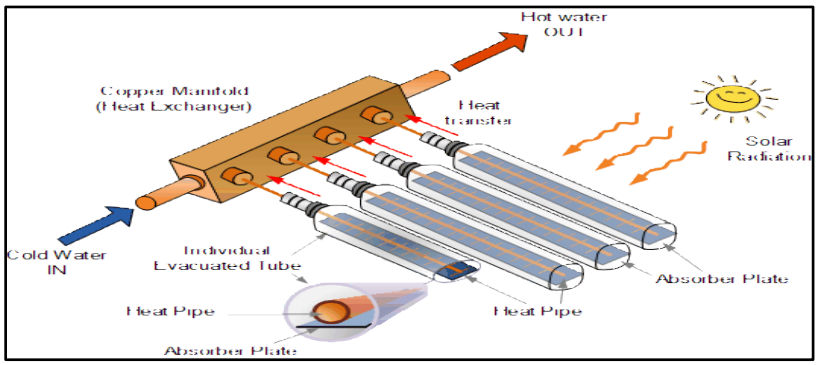

Fig.-4: Evacuated tube Collector [4]

The vacuum wrap reduces convection and conductivity losses, thus the collectors will operate to higher temperatures than flat- plate collectors. The pipe, that may be a sealed copper pipe, is then connected to a black copper fin that fills the tube (absorber plate) protrusive from the highest of every tube may be a metal tip connected to the sealed pipe (condenser). The heat pipe contains a little quantity of fluid such as Methanol that undergoes AN evaporating-condensing cycle. during this cycle, star heat evaporates the liquid, and the vapor travels to the heat sink region wherever it condenses and releases its latent heat. The condensed fluid comes back to the reflector and also the method is continual.

2. Parabolic Through Collector

Parabolic through collectors Parabolic through will effectively manufacture heat up to temperatures regarding four hundred C. this collector is contained of a paraboloid reflector and a metal black tube coated with a glass tube to cut back heat losses. This tube is extended on the focal line of the mirror. Figure 4 is showing this sort of reflector.

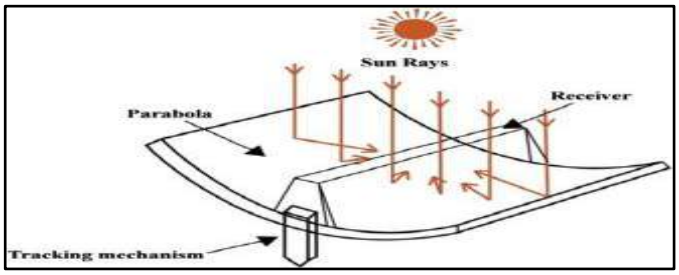

Fig.-5: Parabolic through Collector.[5]

Figure 5: Diagram of a parabolic trough collector once the conic section is pointed towards the sun, parallel ray's incident on the reflector ar mirrored onto the receiver tube. it's adequate to use one axis pursuit of the sun like typical long collector modules made. The collector may be oriented in Associate in Nursing east–west direction, pursuit the sun from north to south, or oriented in a very north–south direction and pursuit the sun from east to west.

3. Linear Fresnel Reflector

This kind of collectors was delineated by Giorgio Francia. Diagram of a linear scientist collector the foremost effective advantage of this sort of system is that It utilizes flat or elastically wiggly reflectors that unit cheaper compared to parabolic glass reflectors. Additionally, this sort is mounted as regards to very cheap, inflicting minimizing the structural wants. Linear scientist collector relies on many mirrors focusing gleams of sunshine to the receiver tube that's penned by secondary reflector. The fundamental vogue there is only one absorbent material tube, but there unit new designs that hold on a mix of or any tubes

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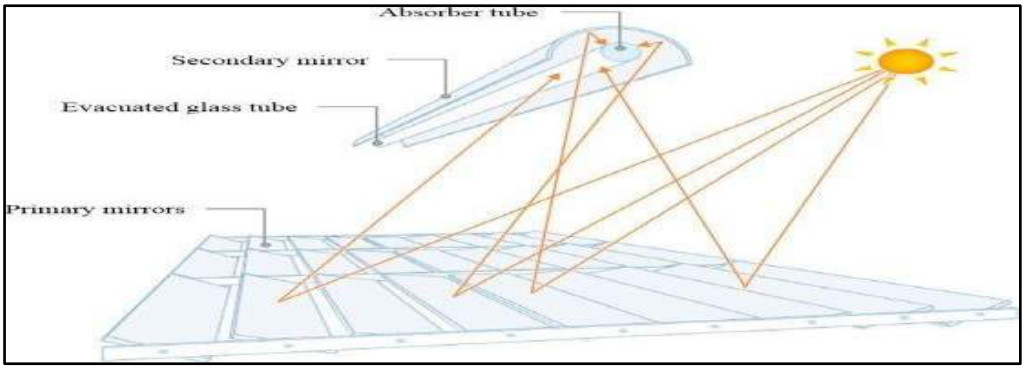

Fig-6: Linear Fresnel Reflector[6]

3.1 Solar PV System

A phenomenon (PV) system consists of one or extra star panels combined with Associate in nursing converter and varied electrical and mechanical hardware that use energy from the Sun to urge electricity. PV systems can vary greatly in size from little or no prime or mobile systems to large utility-scale generation plants. The PV systems will operate by themselves as off-grid PV systems or on-grid PV systems

Fig.-7: A photovoltaic system comprised of a solar panel cell, inverter and other electrical device.

A physical phenomenon system comprised of a device array, converter and completely different electrical hardware.[The light from the Sun, created from packets of energy remarked as photons, falls onto a solar battery Associate in Nursingd creates associate electrical current through how remarked as a results of the development impact. every panel produces a comparatively very little of energy, however ar attending to be joined in conjunction with varied panels to produce higher amounts of energy as a solar battery. The electricity created from a solar battery (or array) is at intervals the style of DC (DC). though several electronic devices use DC electricity, still as your phone or laptop pc laptop pc, they're designed to manage pattern the electrical utility grid that has (and requires) AC (AC). Therefore, so as for the star electricity to be helpful it ought to be compelled to be compelled to initial be regenerate from DC to AC pattern Associate in Nursing converter. This AC electricity from the converter will then be accustomed power physics regionally, or be sent on to the electrical grid to be used elsewhere.

III. CONCLUSION

In present work, overview of Indian energy scenario is presented and current conventional energy resources are identified. It was observed that traditional and fossils fuels currently deployed for power generation are not enough to fulfill energy and demand also comes with price tag and negative environmental concerns. Hence solar based power generation was thoroughly discussed and their types were investigated. It was seen that eacg collector system has its own advantages and disadvantages but PV collectors are always preferred most due to their low maintenance cost, ease of installation and direct electrical energy generation capability.

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DETERMINATION OF VARIATION IN VOLTAGE OUTPUT OF SOLAR PANEL WITH AND WITHOUT TRACKER

Niteshkumar Chaudhari[*1], Abhijeet Golsangi[*2], Raviraj Kadu[*3], Dilipkumar Vishwakarma[*4], Parag Bute[*5]

[*1] UG student, Dept. of Mechanical Engineering, Suman Ramesh Tulsiani Technical Campus, Pune, Maharashtra, India.

[*2] UG student, Dept. of Mechanical Engineering, Suman Ramesh Tulsiani Technical Campus, Pune, Maharashtra, India.

[*3] UG student, Dept. of Mechanical Engineering, Suman Ramesh Tulsiani Technical Campus, Pune, Maharashtra, India.

[*4] UG student, Dept. of Mechanical Engineering, Suman Ramesh Tulsiani Technical Campus, Pune, Maharashtra, India.

[*4] Assistant Professor, Dept. of Mechanical Engineering, Suman Ramesh Tulsiani Technical Campus, Pune, Maharashtra, India.

ABSTRACT

Producing electricity by using renewable energy sources is becoming a trend in almost every country in the world. Thus, the energy of the sun is speedily becoming an alternative source of electricity. The available fossil fuels are non-renewable and are also available in a limited amount. That is why these are exposed to rapidly increasing prices worldwide. Solar energy on the other side is available free of cost, does not produce greenhouse gases, therefore they are not the factor that damages the ozone layer and our environment. Therefore, it becomes important to deeply study the solar panels and their behavior to maximize their output and minimize the cost. This paper studies the differences in energy output between the two types of solar panel system i.e., fixed solar panel system and solar panel system with a solar tracker installed in it. The objective of this research is to find out the approximate difference of the produced output voltage per hour between the fixed solar panel and the solar panel having single or double axis tracker device which includes a programmed microcontroller which is used to control the whole system by making communications with the sensors and motor driver modules which are installed in the system to track the movement of the sun.

Keywords: Analysis of solar tracker efficiency, Automatic solar tracking system, Effects of solar tracker, Study on solar system, difference in solar tracker panel and fixed panel.

I. INTRODUCTION

In the past years, several methods of saving fossil fuels have been suggested to reduce consumption in commercial applications. These methods include harvesting of energy, recycling of energy, etc. as we all know that these sources of fossil fuels are growing towards the end as they are available in limited amounts. Therefore, over the years many methods of using renewable energy sources have been implemented to use the renewable energies available such as wind, solar, tidal, hydro, thermal, etc. from which the solar power is being more popular day by day because of its low cost and low maintenance and no harmful effect on ozone layer and environment.

In earlier days, solar system installation used to be a bit expensive. The more is power requirement, the more solar cells needed which are rather expensive. Therefore, there is a need to improve the performance and efficiency of the system so that it can reduce the installation cost and maximize the output.

Since the solar systems came into existence, a number of several methods have been applied to increase the output power from the solar systems. Among which the most popular method is solar tracker systems which are said to be more efficient than fixed solar panel systems. This paper studies the difference of power generated by these two types of solar systems i.e., fixed panel solar system and solar system with sun tracker installed in it which follows the sun path to extract the maximum energy from the sun by application of various sensors and modules.

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II. METHODOLOGY

The idea of this research originates from the need to improve the efficiency of the solar system and to reduce the cost of installation of more PV cells to generate required power and to aware people of wisely choosing solar system type before installing. In this research, the analysis of the difference of output voltage has been done between two types of solar systems, one is a solar system with a fixed solar panel, and the other is a solar system with a sun tracker system installed.

Fixed panel solar system:

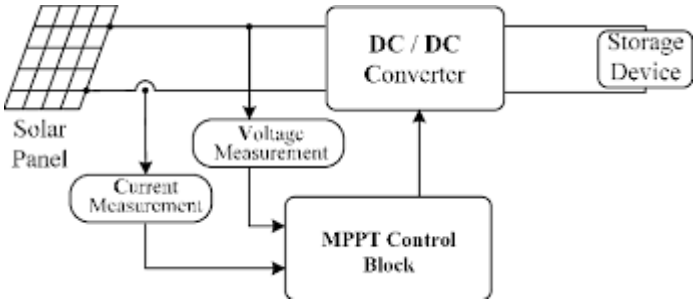

Figure- 1. Block Diagram of Fixed panel solar system

In this type of solar system, the panels are fixed and not movable in any direction. Therefore, when the sun following its path comes straight to the perpendicular axis of the panel, at that time solar system produces maximum energy. But as the sun moves on its path and changes angle with the panel, the system no more able to absorb maximum heat from the sun as the sun keeps moving in its regular path. Due to this, the system becomes more efficient when the sun is on its perpendicular axis but its efficiency decreases when the sun keeps moving and changes its angle.

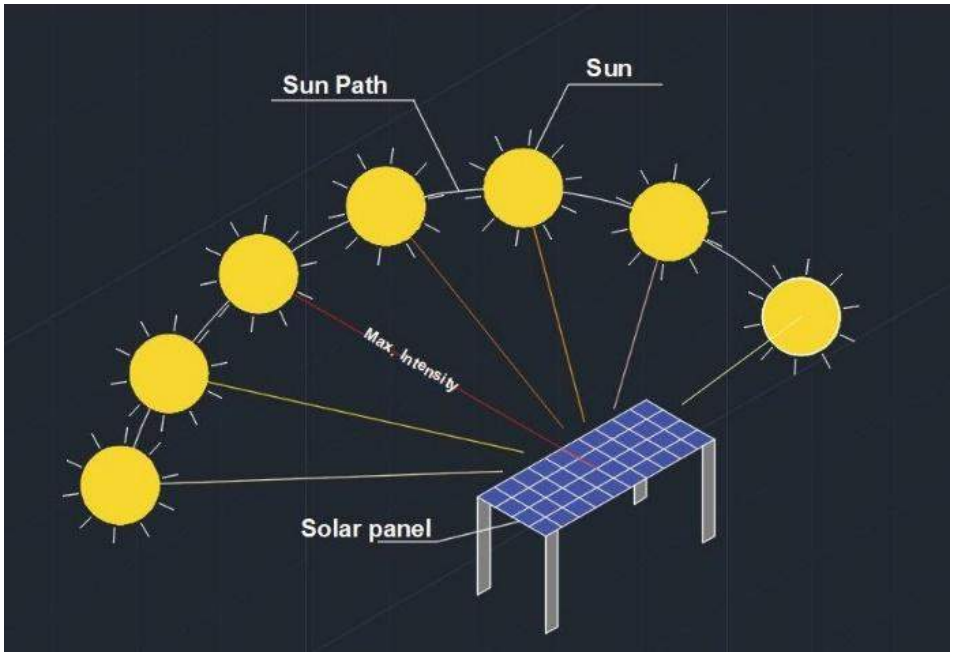

Figure- 2. Fixed solar panel variable intensity of sun

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Single axis solar tracker system:

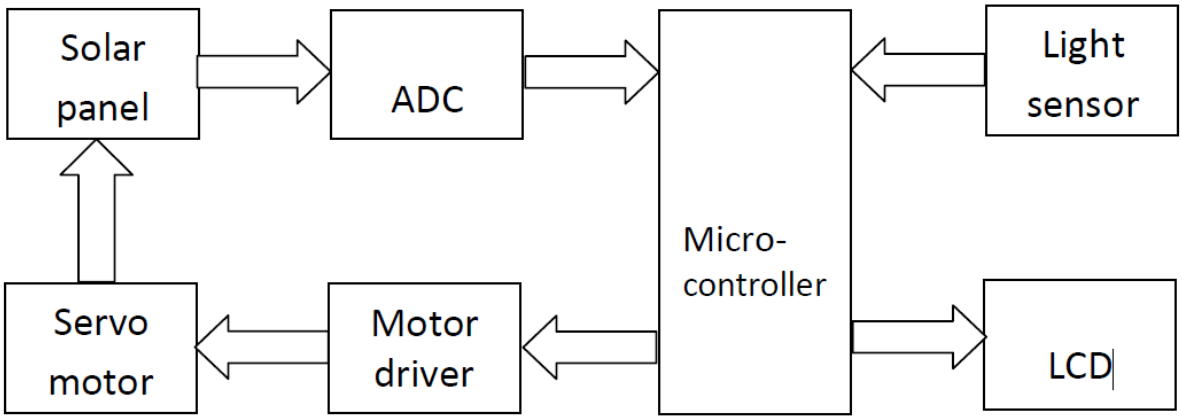

Figure- 3. Block diagram of single axis solar tracker system

This type of solar system as the name indicates it has a solar tracker device that tracks the sun according to its movement and absorbs the maximum energy. It makes an angle perpendicular to the sun and the panel and keeps moving the panel with sun movement. It has an LDR sensor installed on the panel which is exposed to the sun. The sensor is connected with the microcontroller unit which receives the signal and sends it to the motor driver module which drives the motor which is attached to the solar cell in the way that it can move the panel to keep it at an angle to the sun where the panel can get maximum energy.

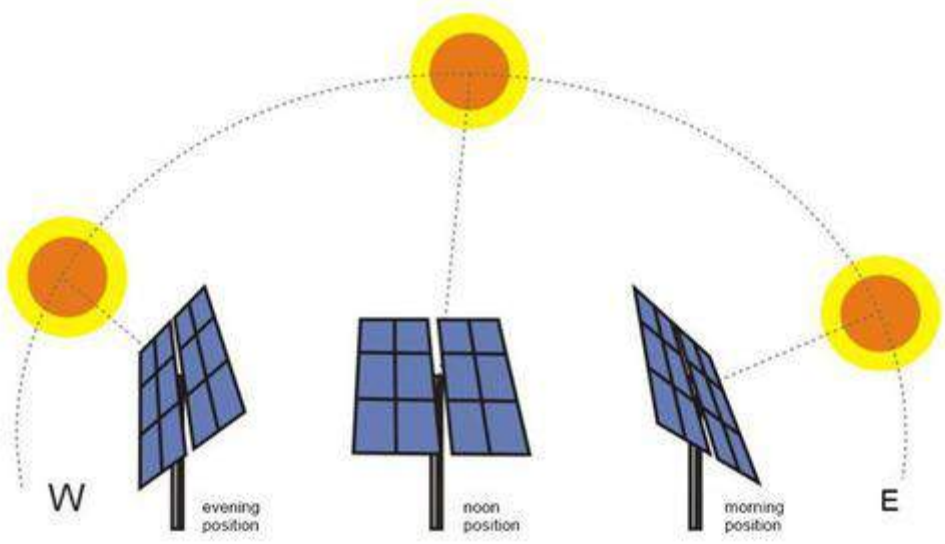

Figure- 4. Solar tracker

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The flow chart:

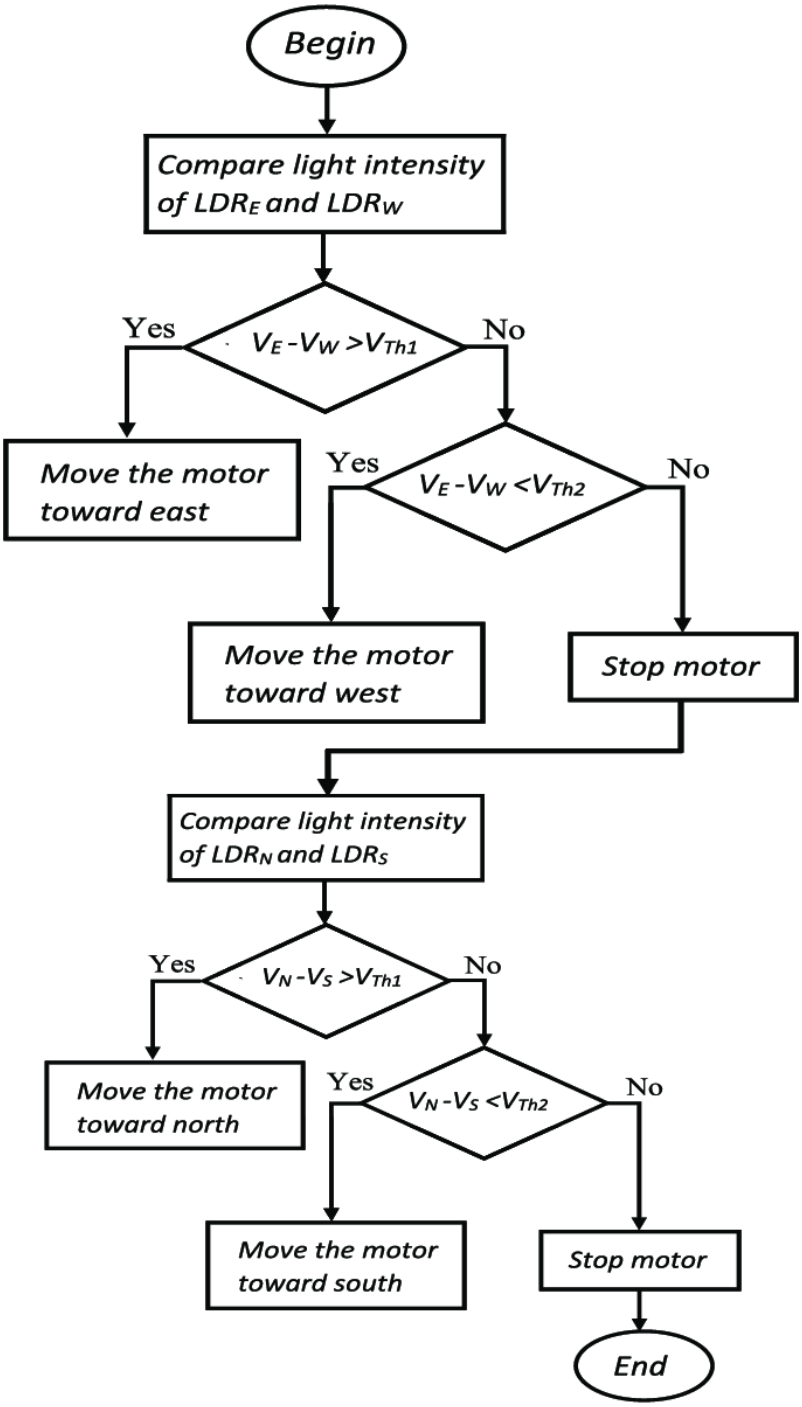

Figure- 5. Data flow chart of single axis solar tracker

System working: The whole system working is mainly depending on the microcontroller. As the microcontroller understands only two digits i.e., 1 and 0, the operation becomes very easy. The microcontroller compares the values of two sensors (S1 and S2) to detect any change. When the microcontroller detects the values 0 and 1 at its input ports, it sends the signal to the motor driver module through the output ports which are connected to the motor driver module's input which drives the motor forward. When the microcontroller detects the value 1 and 1 from both the sensors (S1 and S2) it sends the signal to the motor driver module to

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