Abstract: A Real time sectors can be considered as the things we use daily for our entertainment and execution like music, movies, games etc. in the scenario, we cannot assume which will be liked by the user of the internet and there is corner for every user in which they may like the music of some categories, they may interested in playing some games and someone some other thing. We need to improve market of the corporate with predicting and identifying the accounts of the users who are interested in what things and at what time. Machine learning is making its advancements and we are here to implement a sentiment analysis kind of thing which will acquire knowledge of people things based on their interest. A sentiment analysis can do the things based on the search and the keywords they are using to request a response in the internet. In this article we are proposing a technique using which we can identify the requirement of the people and manage their search capacity using machine learning. In this process we can use K-NN algorithm and other machine learning algorithms based on the requirement of the people search criteria. This will create a good business for the people around the world to make them simplified with their daily life based on their interests and the activities. This approach should be a classified architecture through which we have to gain attention of the people to use the tool.

Keywords: Machine Learning, Predictions, algorithms, organization, variables

I. INTRODUCTION

Designing a machine learning tool or a model is a dream for the techies in this era and the mission is to accomplish the easy life for the people with busy schedule in their daily life and to identify the pain of the people and their lose of bonding among them. In this machine learning approach we will calculate the sentiment of the people with their search based on their mood. In this world some people are liked to be professional with music, games and other things we have to consider every little thing of the person and manage those to the people. If the person is mood off he has to ask to play a music automatically, if the person is enthusiastic of anything he has to ask for the thing he like the most or ask for share the feeling with beloved person etc. how to do this and all. One answer is machine learning using which we can calculate the persons ideology and has to act according to it[1-5].

Machine learning implementation is one end of this architecture and the concept and on the other hand of the coin we have to implement IoT with the device to access all these things in an proposed manner. IoT will clear the barriers between the people and the technology with identifying the things related to the people based on their daily activities and the thing here is to calculate the scenario of the person search and the contacts of his phone. You may get shocked that what we can do with the contacts and what we have to with those stuff. We explain you in detailed architecture in further sections and the architecture will contain the detailed implementation and the huge scenario of the IoT and machine learning combination[6-8].

IoT can make our life simple. Consider any application of automation like gate opening and closing based on the vehicle move, AC on and off from outside of the home, Google assistance etc. But there is a gap between the people and the technology to understand what the people actually need off. IoT can manage the IRIS, emotions, take pictures to make security measures etc. But the thing we are going to
discuss in this article is to make time and make a good result for both the people and company.

The problem here with the machine learning implementation is to identify the person sentiment reports using IoT and the thing also to be considered is to manage IoT device in an effective manner which will lead to the best output of the machine model. There are few steps to be considered in this regard and there is an architecture in machine learning as well as in IoT to manage the human feelings and maintain them in the repository[7-10].

In the next section we will discuss about what are the machine learning algorithms can be used in this implementation also what are the reasons for using IoT in this implementation. Later section with existing system, proposing architectures in the later section, results are followed with next section and finally conclude and future scope of this research.

II. EXISTING SYSTEM

In this existing approach we are considering on predicting the things of the person based on the input they have given to the machine. When a person gave an input like text and we use NLP for the process and the thing here is to use NLP we need to segment the text into chunks and we need to analyze those individually with the Machine learning models[11-13]. But the thing here is we cannot identify the human feelings by capturing their face or the contacts history. That will be the proposed approach and that can be explained later. The following explanation will be on identifying the machine learning algorithms for the better implementation of the existing system approach.

In the following diagrams we are going to explain the implementation of NLP and the K-NN algorithms which will identify the text classification and also the data node category identification.

i. NLP

Natural language processing is a kind of advanced implementations in the machine learning and the process will include the preprocessing of the data and clean the noisy data from the dataset and then clean them with missing values problem. In missing values data set we may get the chance of prediction mislead and then we cannot get the accurate result we require. In this architecture we are using effective methodology to implement NLP using the data set available[14-23].

Figure 1 will explain the architecture of NLP we are using which is already existed.

![Figure 1: NLP architecture following](image-url)
Figure 2: NLP and Deep Learning architecture

Figure 3: IoT Architecture for implementation
The process of implementing NLP is as follows with the following steps and the code.

a. Cleaning the Texts
   In this process we will clean the text variables and we will use stopwords to separate them with respective to the sentence we have. The following is the sample code for the cleaning the texts.

```python
import re
import nltk
nltk.download('stopwords')
from nltk.corpus import stopwords
from nltk.stem.porter import PorterStemmer

corpus = []
for i in range(0, 1000):
    review = ' '.join(dataset['Review'][:i])
    review = review.lower()
    review = review.split()
    ps = PorterStemmer()
    review = [ps.stem(word) for word in review if not word in stopwords.words('english')]
    review = ' '.join(review)
    corpus.append(review)
```

b. Creating bag of words model
   In this BOW model we will create the set of key words which we need to process and based on the BOW we created or generated we need to plan for the implementation like below.

c. Splitting the dataset
   We need to split the data set into training and test data set using which we need to create the model for which we need to train that with the training model and test model

d. Fitting Naive Bayes
   Based on the naïve bayes algorithm we can find the path to construct the decision boundary and especially we apply Gaussian NB classifier

e. We need to predict the test data results
   For predict the test data sets components we use y_pred function we already created.

f. Make the confusion matrix
   To make the confusion matrix we need to follow the below code in the figure.

```python
# Creating the Bag of Words model
from sklearn.feature_extraction.text import CountVectorizer
cv = CountVectorizer(max_features = 1500)
X = cv.fit_transform(corpus).toarray()
y = dataset.iloc[:, 1].values
```

Figure 4: Applying pre-processing of the data set

Figure 5: Creating Bag of Words
III. ADVANTAGES AND DISADVANTAGES OF THIS SYSTEM

The main advantages of this system is we successfully completed in doing task for implementing NLP in the respective data set and the implementation will cover the tasks like cleaning data, removing the missing values, creating BOW, implementing Naïve Bayes algorithm and creating the confusion matrix with the data available [15-18].

The main disadvantage is we are not implementing anything related to the IoT in this architecture and we are proposing a new architecture in the next section as this can be considered as the half way to the prescribed architecture[12-16].

This architecture consists of no live data and the facial recognition of the IoT device and the implementation is not upto the mark and the criteria we are focusing on the next section is about implementation of the proposed architecture with IoT, Cloud implementation, machine learning algorithm. The same NLP has to use because of the excellent packages we have with the IDE like spyder from anaconda distribution[5-9].

In this spyder IDE we will write the code for NLP implementation and the process of IoT and the data storing on cloud and the distribution of the data from cloud is the challenging task and that can be explained in the next section of this article with the prescribed architecture[8-15].
IV. PROPOSED ARCHITECTURE

The proposed architecture consists of the following process. The process consists of the simulators like IoT device which will run using IEEE 802.11 MAC protocol. The architecture of the device will be explained below with an example. Here the question is what will be the face recognition algorithm for the IoT device. The one answer is we use Machine learning face recognition algorithms and for basic we also plan to use Eigen vector matrix algorithm. This is an oldest algorithm[15-20]. The process of implementation is as follows:

Step 1: IoT device will continuously take the image of the person face.

Step 2: Eigen algorithms will make the segmentations of the images and will upload to the cloud storage

Step 3: The images from the cloud storage will move to machine learning platform in that platform we have machine learning face calculation algorithm and identify the mood of the person.

Step 4: Before doing step 1 we have a secret step which will identify the search results of that person from his history of browser based on his Mail ID. It will store the persons image with the search results and the most searched item as the key value pairs

Step 5: After secret step 1 we have to perform secret step 2 which will classify the contacts of the person from his mobile which will used to identify the most frequently called contact and make that as the favorite contact and save that too as the key value pair under this person in the server[20-23].

Step 6: If the person is dull or mood off our IoT device will work as a robot and call that person and ask him or her to play their favorite music or play game for a while to get relaxed[15-16].

Step 7: If the person is not having any wishlist of music or games then show the person some beautiful moments in their life through a prompt to his mobile.

Step 8: Recognize the person facial expression after the task and repeat it until they have smile on their face.

V. PROPOSED ARCHITECTURE

THINGS AND DIAGRAM

The related things in this scenario are as follows:

a. IoT simulating Device
b. Cloud Storage
c. IEEE network access
d. Mobile Device
e. Machine to implement Machine Code

The following will illustrated the individual concepts of simulating device.

Figure 10: Raspberry Pi Simulator

This image 10 will explain how raspberry Pi will concert the data flow from the system to the server through the IoT network.

Figure 11: S3 Bucket maintenance

Figure 11 will explain the architecture of the S3 Bucket which will carry out the data management task with instance.

Figure 12: NLP with IoT network access

This image 10 will explain how raspberry Pi will concert the data flow from the system to the server through the IoT network.
Combining all the above features we have designed two kinds of different architectures. One is a secret architecture and other is exterior architecture.

In the image 13 we have designed the flow of the secret architecture which will clarify the methodology of the scanning the history of the person from the browser based on the mail ID he is operating with. The other operation is scanning his or her contacts to which he or she contacted more.

Primarily in secret architecture one we have the flow chart to explain the process instead of gamification process. In the first step it will consider the single sign in process mail ID and then track the history of the person like music, games etc which can be considered as the entertainment process.

In the secondary secret architecture we have to concentrate on how to identify the persons most favorite contact. Here we can use NLP architecture of BOW. In this BOW we can consider some key words like mother, dad, father, wife, son, love, life etc. Based on these words we can consider the contacts and share the information with those automatically.

The below images and architectures will explain the in the detailed manner in the form of gamification rather than explaining theoretically[8-12].

Figure 13: Secret Architecture 1
Figure 14: Secret Architecture 2

Figure 15: IoT Device architecture with Cloud Architecture

Facial Recognition using Raspberry Pi, USB Webcam, AWS AI & Lambda Services

USB Webcam
Raspberry Pi
AWS CLI
AWE Command Line Interface
Python
OpenCV
computer vision and machine learning software library
AWS S3
AWS Lambda
AWS Rekognition
AWS Polly
AWS API Gateway
AWS SNS
AWS DynamoDB
App
ionic
Mobile
Figure 16: Using Eigen Vector Face Recognition We are concentrating on ML implementation

Figure 17: Combined Architecture of the flow
VI. CONCLUSION

This article completely focus on the implementation of complete Machine Learning and IoT implementation with Cloud as the middleware source. In this process we are focusing on identifying the person facial images and identify the mood of the person implement some machine learning mechanisms to make that person back to normal by understanding the feeling of the person using IoT device and that will do some background research on understanding the related things of the person and the contacts of the person to share the sweet memories with that person and make the message send automatically and create a virtual communication between those people. This will create interest in the people to use the device and be cool with the work.

References


