Student Meditation System

Omkar verma

Dr. A P J Abdul Kalam Technical University, Computer Science & Engineering, Goel Institute of Technology & Management Lucknow, Lucknow, Uttar Pradesh, India
(Student, B. Tech, Computer Science & Engineering, Goel Institute of Technology & Management, Lucknow, Uttar Pradesh, India)

ABSTRACT-*Student Meditation System is a project based on some machine learning algorithms and developed using python programming language. The SMS(Student Meditation System) is designed specially for the student who needs meditation. We are providing many types of meditation classes and training by expert faculty to train the brain of students. We have used a data set named cohen kanade data set to capture the emotions of student and based on the emotion we predict the behaviour of student and send him for meditation classes if he/she required.*

***Keywords**:* Algorithm, data set, facial emotions, meditation, python programming

1. INTRODUCTION

The Basic idea Behind the Project entitled as 'Student Meditation System' is to resolve the problem of meditations in student. To resolve the problem of meditation we are providing some meditation courses in our project such as 'Human Value & Professional Ethics', 'Personality Development Program' ,'Motivational Speech' by good Professors, 'YOGA' etc. If Student is mentally fit i.e. emotionally happy and energetic then there is no need of meditation course for that particular student. If Student is mentally and emotionally disturb i.e., sad, fear or neutral by emotions then we will offer him a meditation of 30 to 40 minutes by industry experts. After completing the course of meditation student must go through the 'Student Meditation System' i.e. Emotion Recognizer and if he again found sad, fear or neutral by their emotions then he will be referred to meditation again.

2. METHODOLOGY

The solution for the problem of meditation is 'SMS' where we are using the concept of Machine Learning to avoid the problem of meditation. Student who want to join the classes of a particular subject/course, there emotions are recognized first with the help of face data set (I am using the Cohen kanade data set for our project) and system camera. System camera capture the images/videos of students and recognizes their emotions. The data set are trained first and then we start our recognizer for recognition of emotions. After the recognition of emotions of faces, we train the data set to predict the exact emotions. Based on the predicted facial behavior of students they are eligible for different different courses. If students are emotionally fit i.e. happy, energetic etc., then he can enter the class of particular subject Otherwise he will be referred to the process of meditation. After the completion of meditation process, we again send the student for the process of emotion recognition and if he/she found emotionally unfit such as fear, sad, neutral etc., then again we will send him for meditation courses that are offered by professors.

The data set has been organized and is ready to be recognized, but first we need to actually teach the classifier what certain emotions look like. The usual approach is to split the complete data set into a training set and a classification set. We use the training set to teach the classifier to recognize the to-be-predicted labels, and use the classification set to estimate the classifier performance.

Note the reason for splitting the data set: estimating the classifier performance on the same set it has been trained is unfair, because we are not interested in how well the classifier memorizes the training set. Rather, we are interested in how well the classifier generalizes its recognition capability to never-seen-before data. In any classification problem; the sizes of both sets depend on what you're trying to classify, the size of the total datset, the number of features, the number of classification targets (categories). It's a good idea to plot a learning curve. We'll get into this in another tutorial. For now let's create the training and classification set, we randomly sample and train on 80% of the data and classify the remaining 20%, and repeat the process 10 times. Afterwards we play around with several settings a bit and see what useful results we can get.

3. MODELING AND ANALYSIS

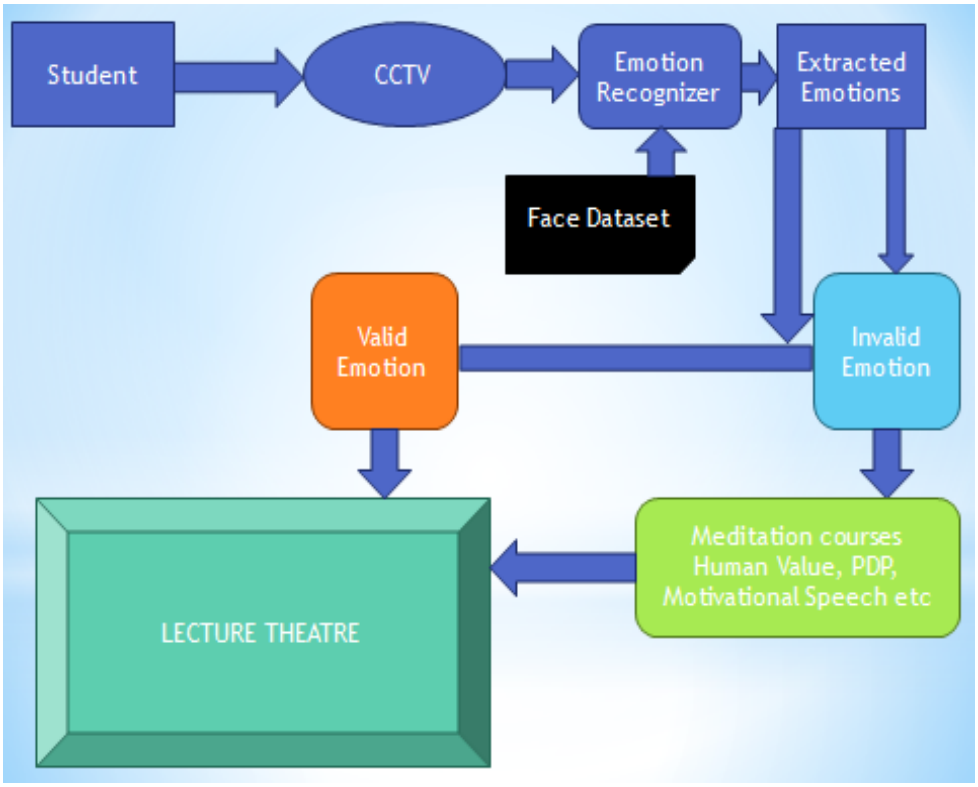
Student Meditation System is developed using python programming language to help the student and ready to train him for better future. Face data set which plays an important role in this project consists thousands of images with different

emotions and our emotion recognizer predict the behaviour of student based on the data set. We also uses some machine learning algorithms and libraries which are as follows.

Python Programming: Python is an object oriented interpreted programming language with easy and dynamic semantics. Python provides various types of libraries for the implementation of machine learning and concepts of artificial intelligence. We are using various python libraries in our project such as numpy, pandas, opencv etc.

Open Cv: Open CV Stands for Open source computer vision is a popular computer vision Library. Open CV is used for real time processing of image streams of all students who want to attained lecture of different types of courses.
PyAudio: Py Audio is a cross- platform python library, which is used for capturing the image streams/videos of students.
Face Recognition: Face Recognition library is used for detecting the faces from source images and image streams captured by system camera.

Prototype: The prototype of the project consists a camera for capturing the live image streaming of the students and there is a recognizer which recognizes the emotions of the captured live4 video streams. And then extractor will extracts the exact emotions of the student and based on the emotions, we refer the student for classes. We have to write python scripts to capture the video streams of the students and our emotion recognizer will recognize those emotions. We have used Open cv python library for image recognition and face recognition library for emotion detection and predictions.

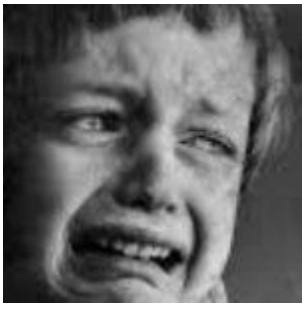


4. RESULTS AND DISCUSSION

The results of the project is to be obtained after detecting the emotional behaviour of students and then they can enter the class with energetic, happy and calm emotions and start learning. The Project can be used in many industries and organizations such as marketing to know the current emotions and behaviour of any persons. The Classifier will predict the 70 to 80 % accurate emotion and the accuracy of the classifier can be increased by training the data set. Sometimes the classifier will gets confused and predict false emotion such as

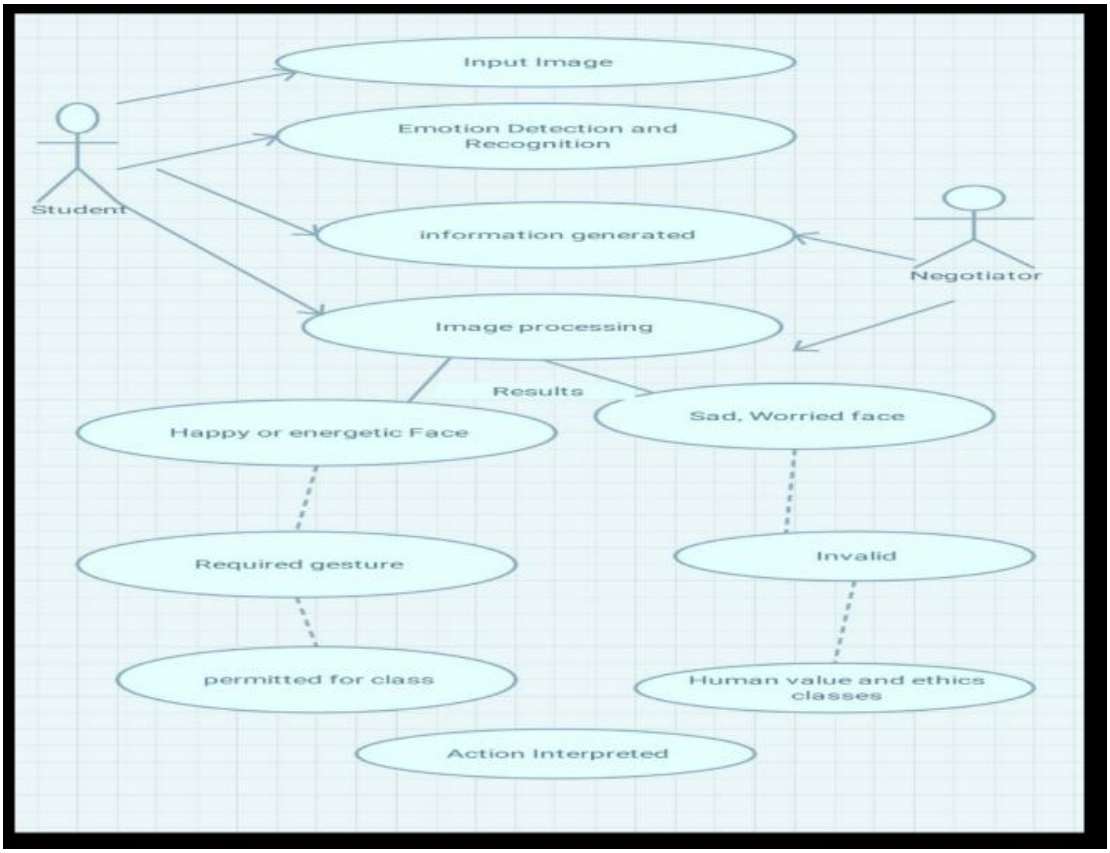
Surprise", classified as "Happy"  , honestly it's a bit of both

disgust", classified as "Sadness"  , he could also be starting to cry.

Sadness", classified as "Disgust" 

Happy", classified as "Neutral" 

The use case diagram of the project is shown below which will describe the project very well. It has a mediator which gives meditation to the student if they needs. Input Images are firstly used for emotion detection which is done by recognizer and then face recognition recognizes the emotions.



5. CONCLUSIONS

Student Meditation System is a machine learning project which resolve the problem of meditation among the students.it is done by face recognition and open cv and some other python programming language libraries which are designed for the purpose of research and development of the computer visions and artificial intelligence. A Video Stream of the student is captured by system camera and it will passed to the emotion recognizer which is trained by a data set named Cohen Kanade face data set and then recognized emotion is sent to the face recognition library and it will predict the output emotion of the students

It's clear that emotion recognition is a complex task, more so when only using images. Even for us humans this is difficult because the correct recognition of a facial emotion often depends on the context within which the emotion originates and is expressed. We have to work hard on the topic to predict the accurate emotions of the persons.

ACKNOWLEDGEMENT

I would like to express my special thanks of gratitude to my faculty member Er. Yogendra Pratap Singh(Department of CSE,GITM Lucknow), Mrs. Akansha Singh(Department of CSE,GITM Lucknow), Mr. Peeyush Kumar Pathak(Department of CSE,GITM Lucknow), Mr. Anurag Jaiswal(CSE Department, GITM Lucknow), Mr. Shivam Shukla(CS Department, GITM Lucknow) as well as our HoD Er. Brijesh Pandey(Head of CSE Department, GITM Lucknow) who gave me the golden opportunity to do this wonderful project on the topic Student Meditation System, which also helped me in doing a lot of Research and I came to know about so many new things.I am really thankful to them.

Secondly I would also like to thank my parents and friends Amit Kumar Pandey(B Tech,CSE),Nazneen Siddiqui(b Tech, CSE), Ashish Kumar Tripathi(B Tech, CSE), Neha Singh(B Tech, CSE) and Aman Kumar Rai(B Tech,Civil Engg.),Er. Katyayani Tripathi(Software Engineer at Yoma Business Solution), Soumya Puri(B Tech CSE) who helped me a lot in finalizing this research paper within the limited time frame.

REFERENCES

1. Miyakoshi, Yoshihiro, and Shohei Kato. "Facial Emotion Detection Considering Partial Occlusion Of Face Using Baysian Network". Computers and Informatics (2011): 96–101.

2. Hari Krishna Vydana, P. Phani Kumar, K. Sri Rama Krishna and Anil Kumar Vuppala. "Improved emotion recognition using GMM-UBMs". 2015 International Conference on Signal Processing and Communication Engineering Systems
3. B. Schuller, G. Rigoll M. Lang. "Hidden Markov model-based speech emotion recognition". ICME '03. Proceedings. 2003 International Conference on Multimedia and Expo, 2003.
4. Poria, Soujanya; Cambria, Erik; Bajpai, Rajiv; Hussain, Amir (September 2017). "A review of affective computing: From unimodal analysis to multimodal fusion". Information Fusion. **37**: 98–125. doi:10.1016/j.inffus.2017.02.003. hdl:1893/25490.

BIOGRAPHIES

- Omkar Verma , student of Goel Institute of Technology & Management Lucknow
- Summer Internship Trainee, Softpro India Computer Technologies Lucknow 2019
- Developed a Web Project using Django Framework entitled as 'Call Processing Optimization'