

Machine Learning Based Emotion Detection and Stress Relief Application

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Abstract- A stress prediction or management is an application that is made by the combination of Android and Machine Learning. Its main and sole purpose is it to detect the stress and strain that people nowadays are facing. Human continuously gets triggered by many surrounding stressors which human are not aware of. These stressors are sometimes subtle. But this can be done well by the machines so we can make an application that can make decisions in real time. Many scientists and researchers are nowadays making the use of the collected data from the internet to make the necessary decisions. In this application, we are again making the use of the information from the camera and image recognition techniques to show whether the person is under any kind of stress or not. This software captures the image from the camera and after processing makes the decision and display on the screen. We are adding some other exercise that is solely based on the android application which again does its job of pacifying the stress.

Keywords – Stress, Facial Emotion, APA, stress relief, emotion detection

I. INTRODUCTION

Every day, humans face several kinds of challenges and obstacles. The human frame has been designed to address such challenges and tough tasks by way of reacting to threats to the thoughts or the frame. The human beings' capacity to protect itself and take dangers to save its lifestyles is due Eustress is a superb sort of strain produced with the aid of our bodies to triumph over demanding situations, face our fears, meet deadlines, write checks and communicate publicly. Stress can be positive while it helps motivate us and encourages us to take action. However, experiencing an excessive amount of pressure for a long period can be overwhelming and can have negative outcomes on our bodily and mental wellbeing. This sort of problematic strain is referred to as distress. There are sturdy associations between strain and certain severe issues.

The American Institute lists more than 50 signs of pressure and problems associated with pressure. A few examples of such disorders include headaches, coronary heart attacks, and depression. Moreover, humans who revel in high ranges of stress have extra odds of developing malignant-tumors. Stress also can contribute in a roundabout way to illnesses which can be associated with unhealthy conduct that generally tends to boom beneath excessive strain, for instance, smoking and lack of sleep. Whenever risk is present, human beings can adjust their pressure status by way of activating the sympathetic that is the branch accountable for triggering the “fight or flight response.

Based on the fact that pressure is ubiquitous, threats can be both internal and external. After facing the hazard with both a combat and a flight response, the other is activated to calm the body. From the five stressors categories that classified based totally on duration defined in we decided to consciousness on the acute time-restricted stressors, as human beings face this type of stressors greater frequently.

II. EXISTING SYSTEM

The existing system is free online services that people may or may not access. It is sure that it is useful but people rarely take that kind of advantage. People sometimes even are very bored by this kind of things so they mainly avoid going online. Moreover, it takes time for people to learn the interface and identify the available features.

Limitations:

- Expensive and Time-consuming
- Too much effort
- Sometime can be misleading
- Limited resources

III. PROPOSED ALGORITHM

The proposed system of this application will surely help people in accessing the information in the right way and people can enjoy and be stress free and relax. It makes people calm and compose. It also includes the breathing exercise that makes the people relax. In the initial stage of development, this might look naïve but we are pretty sure that it would benefit people in large numbers. The project involves the design and implementation of an online stress management application. This system presents an application of online ML based stress management application.

Advantages:

- Less time to access
- Work faster
- More interactive

IV. SYSTEM ARCHITECTURE

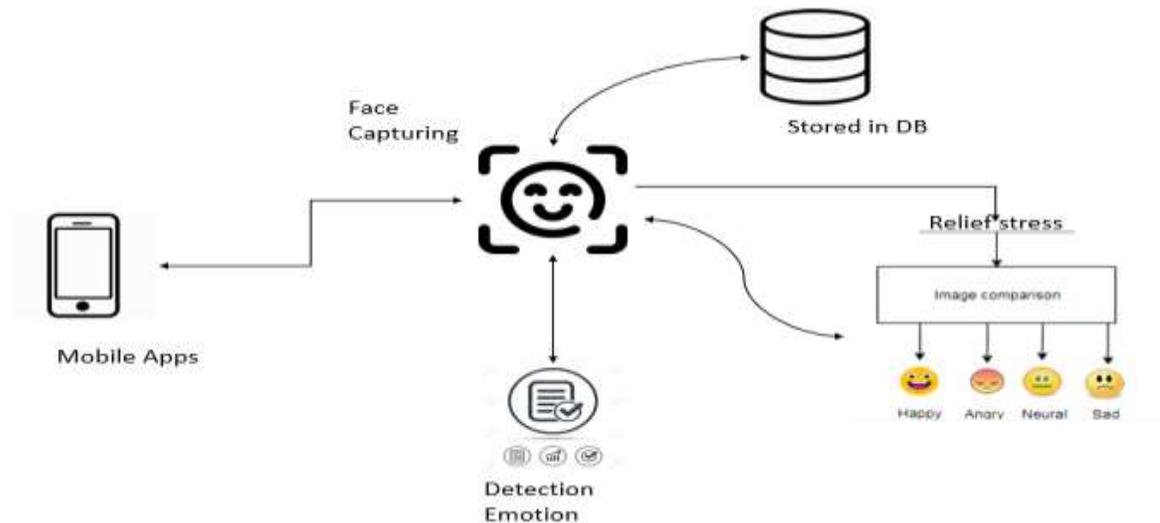


Figure 1. Architecture of the Stress Management system

V. LITERATURE REVIEW

In [1] shows the status of the Electronic Health record well known as HER system in the USA. Currently, the situation in the USA is poor, As the expenditures are high but the quality remains poor. The Affordable Care Act in

the year 2010, attempted in saving cost by saving the cost and improving the quality of care by offering incentives to use Electronic Health Record System. This project didn't receive that much of success. As it requires collaboration of not only the patient but the total system. Apart from economical barrier other things also comes in hinderance for this project to be success so many factors decide the fate of this project.

This paper [2] was totally based on the Access control mechanism which again showed the importance of Security in the system to maintain the integrity of the information of the person. Finally, we can use the idea of UCON to meet the challenge of the confidentiality, data integrity and privacy protection.

Facial Expression [3] decides the emotion of the person. Hence, in order to decide the emotion of the person it was quite obvious we need to look after the emotion detection part. This helped in making of the code fit for our use. Both the other of this paper did excellent work of collecting the necessary job of collecting all the necessary information required.

In this paper [4], the authors discussed more about stress detection. They presented that stress makes the business as big as 200 dollars a year according to APA, the American Psychological Association.

VI. EXPERIMENT AND RESULT

Login/Registration

Here we design to develop sign in and sign up screen. We have two kinds of user namely customer and manager. Android [5] used XML to develop screen in the application. The sign-in page for customer contains UserId and Password, after the audit, if it matches Password to allow to go inside the app else alert message to show to check it again. The manager sign in contain UserId and Password [6] and after the match it will allow the manager to go inside else error message will show to check it again.

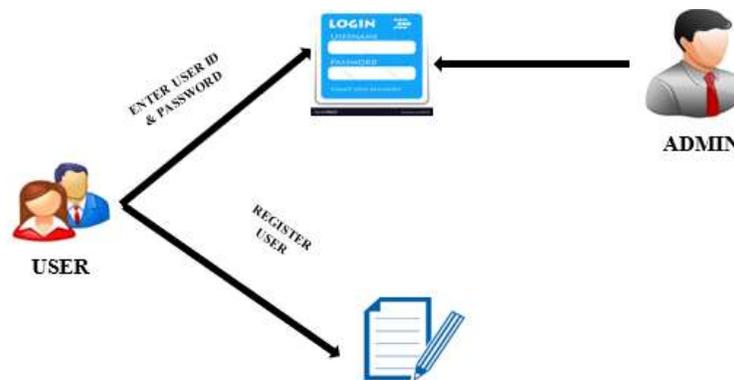


Figure 2. Registration Module

Database Handling

In this module, admins only have the right to register a new user for both parent and Drivers. We want to store all detail at cloud[14]. So, with the help of PHP and JSON we store all the data to the MYSQL database at cloud.

Screen Capture of the Subject

In this module we have to develop a capturing a user face on the screen and capture the picture to store in Database storage. So, capturing screen module the user face can access using an application.

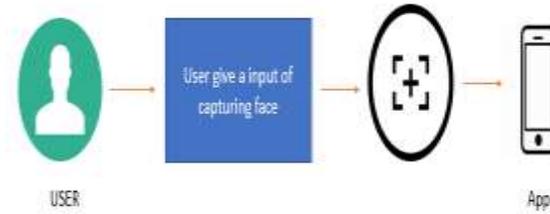


Figure 3. Screen Capture of the Subject

Emotion Detection

In this module we have to create an emotion detection [7] the user face input gets on the screen to the solution for stress expression recognition for the combination with image pre-processing [8] step. It described the innovative solution that provides efficient face expression.

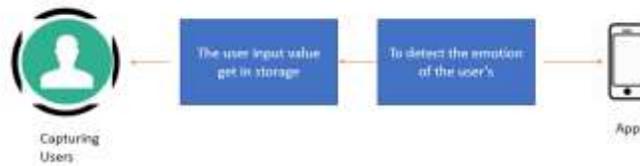


Figure 4. Emotion Detection Module

Stress Relief

In this module, we have implemented the stress relief to analysis the user information of through this apps. The stress relief [9][11] process is analysis the result of the user face expression and the data can be stored. The user helps to breathing exercise [10][12][13] are implement of the stress relief using an application.

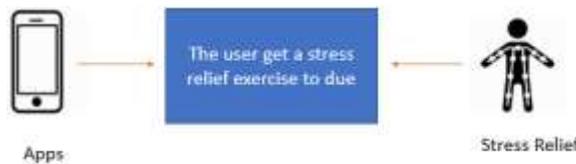


Figure 5. Registration Module

VII.CONCLUSION

Nowadays, we can see so many things coming in the form of trouble, it can be in any form fear, anxiety, tension and many more. Stress can also come up in many ways it may be due to oneself, due to others or even it can be due to the environment. It is very important to manage the stress in some way. This application of our help in managing the stress at certain level. Although, it is not perfect, but I am pretty sure that in sometime it will be use more often. The accuracy attained by us 65.00 percent and I think that is good in the initial face of the development.

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