iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** III **Month of publication:** March 2023

DOI: https://doi.org/10.22214/ijraset.2023.49704

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue III Mar 2023- Available at www.ijraset.com

AI Based Mental Health Prediction System

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Abstract: ***The most common mood disorder in the world, depression has a considerable negative influence on health and functionality as well as profound personal, familial, and society implications. The correct and timely identification of depression-related symptoms may have numerous advantages for both doctors and those who are affected. The current work aimed to develop and clinically test a system capable of identifying visual signs of melancholy and supporting physician decisions. Programmable suffering assessment based on visible signals is a rapidly expanding research area. Picture handling and AI computations are the focus of the current thorough evaluation of existing approaches as described in more than sixty distributions during the last 10 years. The current datasets, various information-gathering methods, and visual cues of misery are compiled. The survey depicts estimates for visual element extraction, dimensionality reduction, layout and relapse choosing options, as well as numerous combination techniques. Incorporating a quantitative meta-analysis of announced results based on execution metrics risk-tolerant, it identifies general trends and significant irksome issues to be taken into account in ongoing investigations of programmed sadness appraisal using visible signs either alone or in combination with obvious signals. Additionally, the proposed work used deep learning to predict the level of the downturn as shown by the contribution of current face photographs.***

Keywords: Convolutional Neural Network, Deep Learning, Dataset, Depression, Artificial Intelligent

I. INTRODUCTION

Discouraged people have no idea what their distressed mental condition is like. They are unable to identify the cause of their ongoing melancholy, and as a result, these students eventually develop self-destructive tendencies. Students who are depressed may be aware of their condition, but they may be reluctant to seek assistance because of the false perception of "humiliation" that is linked with depression. In the beginning of grief, it is wiser to recognise the signs of misery. A simple one-hour conversation with a mentor could be of enormous help to the understudy if misery is identified in the early stages. This may definitely shift that understudy's unfavourable viewpoint to one that is positive. Such a student can receive excellent guidance on how to handle mental pressure and can be instructed to follow the right path to advancement. The primary form of non-verbal communication is eye contact. Many studies have been conducted to identify the appearances associated with misery. The main goal of the current research is to identify understudies who are unhappy by focusing on their facial features. This framework largely consists of different face identification, highlight extraction, and classification of these features as discouraged or non-discouraged picture processing techniques. The system will be taught using depressive disorder symptoms. Afterwards, using a web camera, videos of various students' frontal faces will be recorded. Then, these faces' facial traits will be retrieved for depression prediction. Based on the level of depression features the student will be classified as depressed or nondepressed. Facial mood detection according to time series image inputs.

1) Predict mood level based on score or weight with class label.
2) Successfully implemented the test model based on a training set as supervised learning approach.
3) Execute the proposed system maximum accuracy.

II. LITERATURE SURVEY

Numerous examinations have been conducted to recognize the specific looks that are associated with despairing. A survey has been driven for finding Activity Units (AU) associated with different sentiments displayed by deterred patients [1]. The presence of AU12 which is connected with feeling smile was low in uncommonly beat patients down. The presence of AU14 associated with feeling disdain and AU10 associated with feeling scorn was furthermore present close by AU12. The video data for this survey was accumulated through clinical gatherings of beat patients similarly as non-put patients down. The results showed that AU14 associated with feeling scorn exhibited commonly careful for awfulness area Features associated with eye improvement to understand the eye activity of the deterred and components associated with head present advancement to fathom the head improvement direct of the deterred has been finished in [2].

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The gathering of the components associated with eye development showed higher significance in perceiving serious agony. Disclosure of demoralization from facial features ought to be conceivable by assessing 'Multi-Scale Entropy' (MSE) on the patient gathering video. [4] MSE helps with finding the assortments that occur across a single pixel in the video. The entropy levels of significantly expressive, non-deterred patients were high. The entropy level was low for deterred patients who were less expressive of their sentiments. One more survey presented a technique which uses examination of facial estimation close by assessment of talk for misery area [3]. This work says that the explanations related with hopelessness are seen as in lower frequencies in more unassuming range accounts. Subsequently longer time accounts ought to be gotten for effective distress disclosure. Datasets are furthermore made by getting accounts of patients while taking note of clinical gatherings. Interviews recorded were for both to put patients similarly as non-beat patients down. Accounts are in like manner recorded from the examination of hopelessness till the patient has moved along. [1][4]. Studies showed that there is a gigantic association between facial features and vocal lead of the deterred [5]. In unambiguous examinations, patients were given wearable devises to screen their genuine prosperity, enthusiastic direct and social correspondence for perceiving trouble [6]. A couple of investigators have accumulated datasets by showing individuals film-strips to get the vibes of subjects watching them. Data is moreover accumulated by giving an endeavor of seeing pessimistic and good sentiments from different facial pictures [7]. As opposed to taking apart a video for distress acknowledgment frame by frame, improved results have been got for revelation of hopelessness when the video is viewed as generally speaking. [8] For this the patient's face area is first instated actually. Then, KLT (KanadeTomasi-Lucas) tracker is used to follow the face all through the video. The KLT tracker removes recurring pattern information from an image, for instance for a hopeless enunciation the sides of the mouth would be determined down. Video based system showed more accuracy as it summarizes the face region even more exactly hence the second improvements inside the face region are in like manner considered for the debilitation area. The students encountering distress would show less care in homerooms. Expecting the students' sentiments are wanted to the activities done in homeroom, their excited state should be visible in the event that they are deterred or not, and considering this the teacher can help the student by zeroing in more earnestly on that particular student. [11] In the event that different appearances in a comparable scene show a comparable positive or negative assessment, it would help with figuring out the whole situation of the scene, whether or not subjects in the scene are lively or whether something wrong is happening in the scene [12].

III.PROBLEM STATEMENT

The goal of the proposed study is to develop and put into use a system for depression level prediction using deep learning, which extracts visual information from a user's face and forecasts their level of depression.

IV.PROPOSED SYSTEM

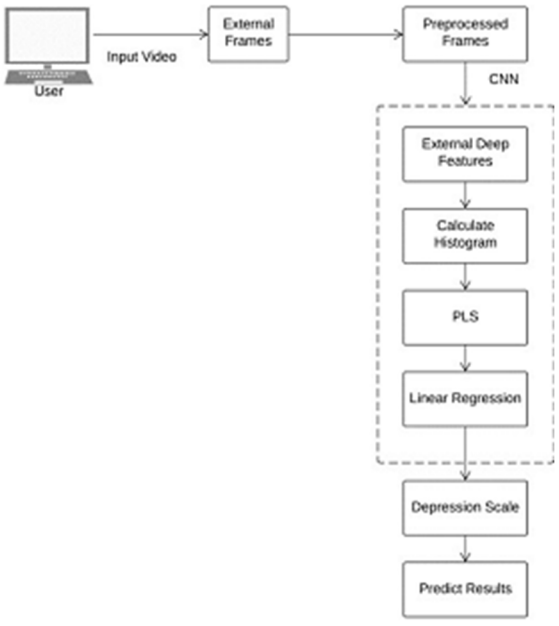


Fig: - System Architecture

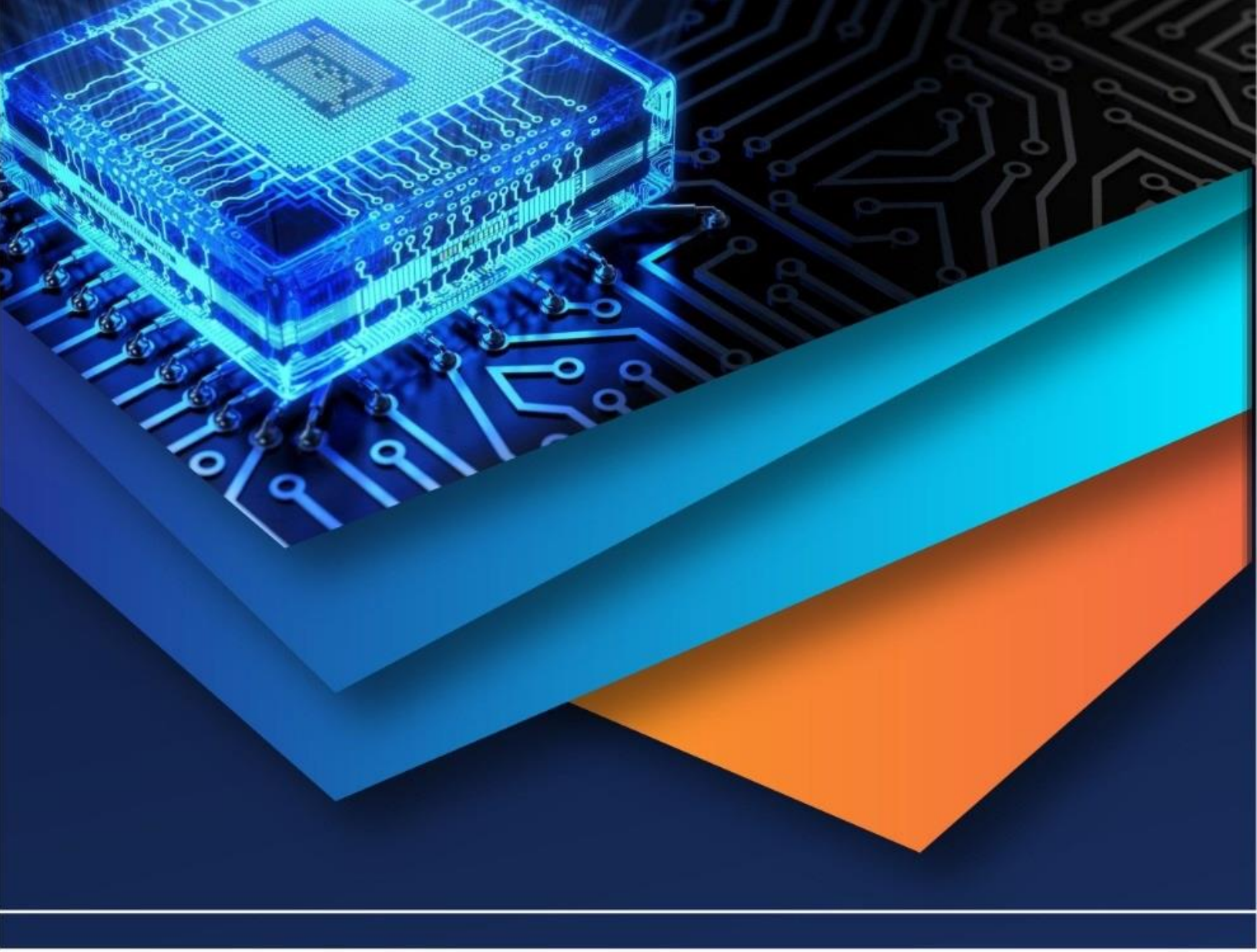
The suggested system is built in Python utilising CNN techniques, and it will be able to forecast peoples' levels of mental stress. The proposed system's methodology is as follows. • The image data were collected from Kaggle. • The collected dataset is divided into 2 parts. i.e :- 80% for training and 20% for testing Several techniques, including feature extraction and pre-processing, are used. PHP and bootstrap are used for the front end of the web application that uses convolutional neural techniques for classification, and Python is utilised for the back end. The user-taken image is passed, and the features of the captured image are extracted. Extracted Features are compared to the trained model, and based on the proximity of the matches, the predicted output is determined.

V. CONCLUSION

This system plays a communicative role in interpersonal relations and helps in precisely predicting the mental health of a person.

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