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Detection of Human Depression and Sadness Using Artificial Intelligence

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ABSTRACT

Recognizing human emotion is very tedious things,lots of Application,API are available on the internet to detect human emotion from facial expression pictures and sometime use videos for analysis.it has become more difficult to express and deal with those negative emotions. In this paper, we are trying to create an app that will help the user to overcome their depression by suggesting to them the ways to tackle it. The app is made using the Ionic 4 framework and has a feature that will detect the user's emotions using their face.

Keywords:-*Artificial intelligence,Facerecognition,Google assistance*

I. INTRODUCTION

From the start of the 20th century, technology is advancing vastly. The improvements in technology are creating our life much easier, but it is also creating a big impact on our self [1]. We are feeling freer from the internet and other entertaining things have come. But on the other side, we can see that everybody is getting depressed more easily. And nowadays, it has become more difficult to express and deal with those negative emotions[4]. In this paper, we are trying to create an app that will help the user to overcome their depression by suggesting to them the ways to tackle it. The app is made using the Ionic 4 framework and has a feature that will detect the user's emotions using their face.

With a preference for easy and quick response, Artificial intelligence[8] is proceeding forward with patients in mental and behavioral health care. To check the count on people with depression who cannot get treatment has provoke the advancement of different ways to mental health care; many of which clout technological advancements. One of the best way AI could be used to help people to manage sadness,depression, as well as what the technology not do the

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same..We are using an open-source face-emotion detector and using it inside the ionic app. For the handling of all other parts after the detection, we are using the Dialogflow framework. The main focus is to combine these 3 independent technologies and create an app that will help the user to overcome their depression.

What AI Offers-

Accessibility and Responsiveness

The Artificial intelligence system is convenience by being available 24/7 without any cost.[14]. Programs that include data that allows them to create a level of curativesympathy with users and offer related feedback.

Privacy and Anonymity

Every person wantsprivacy to enjoy invisibility technology can provide. By considering the seriousness and personal behavior of the content shared in counseling and treatment,AI programs can be used anonymously by users[16]

Access and Stigma

Artificial intelligent based depression, assets also aim to address other obstacle to mental health treatment, such as an inadequacy provider in rural areas, the stigma associated with seeking help and aware of fear, guilt or shame, shame that may stop someone with depression from reaching out to others.[1,4]

Advantages of AI use to remove depression-

Convenience

Traditional approaches that patients take appointment once or twice per week to meet with a counselor for more than a half hour.AI apps having ability to access emotion recognize resources that are easy and low cost are most important benefit provided by artificial inteligance,which can be compared with the cost of therapy fees making much difference.

Connection

Forging connection is a key part of the healing process. Persons can have the feeling to be connected and understood by using artificial intelligence-based apps.[6,8]

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Anonymity

The mobile apps and AI based system allows people to receive depression control services to their own personal living space.it canreduces the chances of others knowing someone is receiving care.

Examples of AI Bots & Apps for Depression

WoeBot

It is automated conversational agent was launched in the summer 2017 ,which iscalled as "chatbot".it is developed to provide easily take care for those frustasting people with depression.it can offers self help related guidance.

Wysa

It is AI based emotionally-intelligent bot that can help you manage your emotions and thoughts[18]

Tess

It is also AI based program, which is a simple text messaging conversation apps which users can access through online repository such as Facebook Messenger, texting, net surfing, and mobile apps.[29]

Youper

Youper is freely online available apps which is usedfor iOS and android.This app is used to help client talk through their behavior expression ,emotions and pattern. This is also known as"emotional health assistant", which can getFeedback and also learn day to day life text conversions with users[30].

II .Literature Survey

Loamy p [1] have been a survey in which artificial intelligence is deployed to tackle mental health issues. Jodi Clarke [2] have a survey in whichthe AI is deployed to help depression in particular. Anastasia Pampouchidou[3] discusses theanalytical methods for automated depression analysis. For analysis Purpose it was assisting with clinicians in the diagnosis and examines the depression.Vincent M [4] have been used an API which can do tasks like face recognition, Face Emotion detection etc.AneesUL Hassan [5] has been Analysis of user

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sentiments using machine learning approaches. MandarDeshpande[6] have been used naive bayes' theorem for Depression Detection.Will Knight[7] write a surveyto show that Smartphones can detect user emotions.BorjaM[8] has been performed survey on mobile application for detection of human depression condition approved by world healthcare organization. Darren Foster[9] have presented Research into agent based intelligent decision support system to support clinical management.Emily Harris[10] have performed study on child behavior,analysissymptones of child depression.InGillian Cameron[11] the author main aim is to develop a chatbot to be used for mental health counselling using DialogFlow.AnushaVegesna[12] studiesshows how we can develop the E-commerce Chatbots using DialogFlow. Libby Ferland[13]discusses the building the AI is coping with memory loss and its challenges.HeruAgusSantoso[14] proposed about how DINA is built using Api.ai(DialogFlow framework) to manage university admission.Satyanarayana[15] is creating a chatbot for Railway System which based on to Artificial intelligence.MandarDeshpande[16] discusses the depression detection for twitter feeds using ai and curated word-list. Andrea Gaggioli[17] states that how online emotion detection can be useful for future of mental health.Salik Ram Khanal[18] had presented a comparison between Google's and Microsoft's Emotion Recognition Api. AM Rahman[19] proposed challenges of Chatbots and their future perspectives. Also contains details about various chatbot services.HengjinKeChen[20] proposed the design of an online EEG classification.It is a case study of depression evalution which is performed on EEG dataset.UditeshJha[21]use the technology which is chatbot, which maintains the transparency and privacy with user and it will be helpful to those having depression, fear of sharing and fear of being judged.Mobile app is developed for it. AnushriArora[22] had gone through different sensory signals and suggest path by which they can be used to effectively capture patterns. It also suggest number of learning models that can accurately classify and recursively pinpoint the intensity of depression.Vishal Kumar Gupta[23]presents reviews of applications of Artificial Intelligence which are effectively assisting in diagnosis and intervention of selected emotional and behavioral disease.AnushriArora[24] peruses various different sensory signals and suggest apath by which they can be used to effectively capture patterns. It also suggests a number of learning models that can accurately classify and recursively pinpoint the intensity of depression. Hassan Ali[25,33] shows how to implement the web-based fuzzy expert system. Lang He[26]

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presents a framework towards estimating a clinical depression-specific score, namely the Beck Depression Inventory (BDI) score, based on the analysis of facial expressions features.Sarmad Al-gawwam[27] used several classification schemes for evaluation on the dataset provided by the Audio/Visual Emotion. Author finds that eye blink feature give 92.95% accuracy, using adaboost classifier for north wind task and 88% for freeform task over the entire overview .KaustubhKulkarni[28] proposed a method that aggregates features along fiducial trajectories in a deeply learnt space, the proposed methodology improves the state of the art results on CK+ and OULU-CASIA datasets for video emotion recognition, and achieves competitive results when classifying facial action units on BP4D dataset. XiuzhuangZhou[29] states the implementation and use of a deep regression network called DepressNet which helps to recognize depression from visual cues. Lars Bollweg[30]states how a chatbot can be developed for massive open online courses(MOOC) which will help the user to learn in a more easier way from the internet.Vinodbharat[31] used different data mining techniques to find appropriatesolution.In this study the author[32,34] used deep learning techniques in health care.

III.Conclusion

From all the above discussions we can see that the depression can be detected using the FaceApi which uses the TensorFlow framework as its base. Face Expression can be detected using these APIs and then using the DialogFlow we can connect the app to the AI. We can also conclude that we can also use this new approach to create applications using the Ionic framework which may reduce the coding and designing part in the future. The Ionic app can be easily enhanced using any other functionalities and their APIs to provide good AI support.

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