

A Synopsis on

Baymax- AI Based Depression Detection

Submitted in partial fulfillment of the
requirements of the degree of

Bachelor of Engineering

in

Information Technology

by

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CERTIFICATE

This is to certify that the project Synopsis entitled ***“Baymax- Your Mental Health Care Companion”*** Submitted by ***“Rupesh Prasad(14104010), Nikhil Sonawane(16204010) Rajesh Kumar Soni(16104063) ”*** for the partial fulfillment of the requirement for award of a degree *Bachelor of Engineering* in *Branch Name*.to the University of Mumbai,is a bonafide work carried out during academic year 2019- 2020

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Declaration

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Abstract

Artificial intelligence (AI) technologies and techniques have useful purposes in every domain of mental health care including clinical decision-making, treatments, assessment, self-care, mental health care management and more. Recent technological innovations are highlighted to demonstrate capabilities and opportunities. This project involves an AI based Expert System which can significantly contribute to improving mental health of an individual to lead a better life without any stress or melancholy. The expert system provides expert advice and therapy to overcome negative thoughts. This project can also help to reduce the number of suicides caused due to extreme depression. This project is about virtual human conversation with the system to support user's interaction within a mental health care context. It provides private online healthcare guidance and support where the app can serve the role of a clinician or a psychotherapist.

Introduction

As per a survey by WHO in 2020, close to 800,000 people die due to suicide every year and there are many more who attempt suicide.

Suicide occurs throughout the lifespan and is the second leading cause of death among 15-29 year olds globally. An application in your mobile phone that can handle whatever life throws at you and helps you live the best life you can.

We need an application which will help people to deal with depression, anxiety, social distress, relationship stress, career stress, body image, loneliness.

Various technologies like Artificial Intelligence, Expert System, Fuzzy Logic can be used in making such an application.

Objectives

Looking at the severity of mental illness, there is a need of some application which can act as your mental health care companion. An application in your mobile phone that can handle whatever life throws at you and helps you live the best life you can. We need an application which will help people to deal with depression, anxiety, social distress, relationship stress, career stress, body image, loneliness.

Various technologies like Artificial Intelligence, Expert System, Fuzzy Logic can be used in making such an application. Artificial intelligence (AI) based tools hold potential to extend the current capabilities of clinicians, to deal with complex problems and ever-expanding information streams that stretch the limits of human ability. The (treatment) choices we make change what we observe (clinically, or otherwise), which changes future choices, which affects future observations, and so forth. As humans (clinicians or otherwise), we leverage this fact every day to act "intelligently" in our environment.

To best assist us, our clinical computing tools should approximate the same process. Such an approach ties to future developments across the broader healthcare space, e.g., cognitive computing.

Literature Review

Paper Title : Distributed Grating Sensor Stress Data Acquisition and Management System

Authors: Zhenhai Mu , Lizhen Jiang

Publication details : Guilin University of Aerospace Technology ,Guilin,541004,China **Findings:** As a popular measuring tool, grating sensor should be used.The range of application is more and more extensive. The advantages of high-precision data measured make it a promising development prospect at home and abroad. At the same time, the system design of this subject needs to combine hardware and software.

Advantages: Detect The level of stress

Galvanic Skin Response Disadvantages: Chatbot was not provided and Fuzzy Logic was not provided, Only level is shown.

Problem Definition

Baymax is an AI based application, which serves as a companion and is capable of understanding people's emotions. It helps to deal with depression and stress by guiding the person to think rationally and deal with any situation in an optimistic manner. Baymax is capable of analysing depression levels and provides psychotherapy. The Baymax software must take care of all the cases that will be encountered during conversation. This application should immediately send an alert to the user's acquaintance when it identifies that the user is going to take a fatal decision. The user must have access to all the tools in the toolkit. The application must be able to respond correctly to all types of emotion. It should be able to make rational decisions and provide favourable advice.

Proposed System Architecture/Working

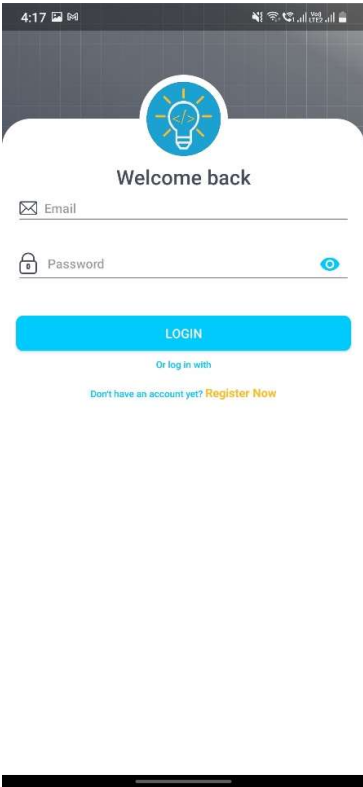
Comparison of read and spontaneous speech in case of Automatic Detection of Depression (2017)

Speech samples were collected from healthy and depressed subjects in quiet environment with head microphone. The recordings were recorded at 44,1 kHz with 16-bit sample rate. Two types of speech sample were recorded from each subject, read speech: a short folk tale "The North Wind and the Sun" and spontaneous speech: dialogue between the examined subject and interviewer, both in Hungarian language.

Design and Implementation


Snapshot:-

Login




Sign Up


4:17




Create Account




Name




Email



Phone Number



Password



REGISTER

Or register with

Already have an account? [Login](#)

Set Of Questions

The screenshot shows a mobile application interface for a 'Depression Test'. The app has a blue header bar with the title 'Depression Test' and a hamburger menu icon on the left and a settings icon on the right. The background is black. The test consists of three numbered questions, each with four radio button options labeled A, B, C, and D. At the bottom, there is a blue 'SUBMIT' button.

4:23

Depression Test

1

☐ A. I do not feel like a failure.

☐ B. I feel I have failed more than the average person.

☐ C. As I look back on my life, all I can see is a lot of failures.

☐ D. I feel I am a complete failure as a person.

2

☐ A. I don't cry any more than usual.

☐ B. I cry more now than I used to.

☐ C. I cry all the time now.

☐ D. I used to be able to cry, but now I can't cry even though I want to.

3

☐ A. I am no more irritated by things than I ever was.

☐ B. I am slightly more irritated now than usual.

☐ C. I am quite annoyed or irritated a good deal of the time.

☐ D. I am quite annoyed or irritated a good deal of the time.

SUBMIT

Summary

Looking at the severity of mental illness, there is a need of some application which can act as your mental health care companion. An application in your mobile phone that can handle whatever life throws at you and helps you live the best life you can. We need an application which will help people to deal with depression, anxiety, social distress, relationship stress, career stress, body image, loneliness.

References

- Sami Elzeiny, Marwa Qaraqe(Blueprint to Workplace Stress Detection Approaches) 2018.
- Comparison of read and spontaneous speech in case of Automatic Detection of Depression(Gábor Kiss, Klára Vicsi) 2017.
- Aslina Baharum¹, Tan Wei Seong¹, Nurul Hidayah Mat Zain², Nurhafizah Moziyana Mohd Yusop³, Muhammad Omar⁴, Nordaliela Mohd. Rusli (Releasing Stress Using Music Mood Application: DeMuse) 2017.
- ADITYA VIVEK THOTA, A DHARUN (Machine Learning Techniques for Stress Prediction in Working Employees) 2018
- Zhenhai Mu , Lizhen Jiang (Distributed Grating Sensor Stress Data Acquisition and Management System)2019

