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Acoustic Mood Analyzer

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Abstract: ***The Mood Tracker application is designed in such a way that it provides a plethora of options to the user regarding their mood, mental stability and how to improve it. It gives the user insights on their moods, track their history on the application and provides a detailed analysis through graphs so that it becomes easier for the user to understand. The app opens with a calendar in which users can add their mood which is helpful in providing a dataset of the user. The app also provides various mood upliftment methods that can be practiced by the user along with important medical information like doctor's details. This application is a small contribution to mental health and wellness from our team.***
Keywords: Mood Tracker, App

I. INTRODUCTION

In today's world which is full of hustle and struggles, it becomes a necessity to keep our mental health in check. To overcome this, we have built a mood tracker that would enable the user to track their mood, can add small notes in the calendar regarding how they are feeling, track their history through graphs and gain insights about their mental health.
With our easy-to-use interface we enable our users to customize their calendar, users can also set up reminders to log their moods. The app also gives some tips and advices to uplift the mood of the user
and if the user thinks that their mental state is not well and needs to be clinically diagnosed, we also provide the contact information of some psychiatric specialist.
Our application's main objective is to promote self help and it advocates for mental health awareness.
It empowers users to have a better understanding of their emotions and gain control over it.

II. PROBLEM STATEMENT

The need for a reliable and efficient method of depression detection, coupled with the significance of leveraging speech recognition technology for scalable and objective screening.

A. Literature review

Paper [1] - This research paper introduces an Android application named "Moody Buddy" along with a hardware kit for analyzing heartbeat, aiming to detect and analyze an individual's mood and emotions with high accuracy. Recognizing mood and sentiment is complex, particularly in monitoring human emotions, hence the study integrates artificial intelligence and Internet of Things technologies. The research starts by observing the user's activity on social media as a basis. Logistic regression is employed in the software component. Additionally, a hardware component monitors the person's heartbeat, triggering a questionnaire if any abnormalities are detected. By combining the results from both components, the system aims to accurately analyze and detect the individual's current mood.
Paper [2]- This paper examines the landscape of mood tracker applications, highlighting their current strengths and weaknesses, with a focus on their relevance to mental health issues and therapy. Through an analysis of various applications available on the Google App Store and Apple Store, the study identifies key criteria drawn from existing literature. The findings suggest that incorporating guidelines, collaborating with mental health specialists, and exploring new interaction styles could enhance the effectiveness of mood tracker apps. Additionally, the study hints at the potential impact of incorporating images into these apps, particularly within the context of therapy. Overall, the research underscores enhancements which can positively influence mood trackers and their utility in therapeutic settings.
Paper [3] - This paper introduces a Python-based mood analyzer designed to address the overwhelming array of choices in digital music and movie platforms. It utilizes natural language processing techniques and machine learning algorithms to analyze textual data from various sources, including user reviews, to identify emotional features associated with music and movie content. By employing sentiment analysis and emotion identification algorithms, the technology aims to offer personalized recommendations to users based on their desired emotional state.

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Through continual learning and refinement of its recommendations, the system adapts to users' preferences, ensuring that they receive the most relevant and personalized content.

Paper [4] - This research focuses on enhancing sentiment analysis, which aids in understanding emotions conveyed through written text like online reviews and social media posts. It likens sentiment analysis to a smart assistant for discerning whether people are expressing happiness, sadness, or neutrality about something. The study delves into accuracy improvement of sentiment analysis, particularly in detecting nuanced expressions such as sarcasm or variations in cultural styles. By making sentiment analysis smarter and more precise, the research aims to provide businesses and other entities with a useful tool for extracting insights from the vast amount of online information available.

Paper [5] - This research paper presents a better approach to emotion recognition by joining facial expression analysis and electroencephalography (EEG) data. Traditional methods of emotion recognition primarily rely on visual cues, such as facial expressions, which may not be effective for individuals with limited expressiveness due to certain neurological disorders. To address this limitation, the proposed method integrates deep learning techniques to extract features from facial expressions captured through video analysis while simultaneously analyzing EEG signals. By leveraging the complementary information on facial expressions and EEG data, the aim is to enhance the accuracy of emotion recognition systems. The paper highlights the importance of exploring alternative methods to improve emotion recognition and outlines various tasks involved in the research process, including literature reviews, model design, experimentation, evaluation, and ethical considerations. Additionally, it emphasizes the significance of continual learning, collaboration, and the utilization of appropriate tools and platforms to ensure the success of the project.

B. Objectives

The objective of the mood tracker application is to help users track their emotions and improve their self-awareness of their emotional patterns. By tracking their moods over time, users can identify trends, triggers, and patterns that impact their well-being.

C. Existing System

There are many existing mood tracker apps available. Some popular ones include **Daylio, Moodnotes**, and **eMoods**. These apps typically allow users to track their moods by selecting from a mood chart or entering a custom mood. Some apps also allow users to track their activities, sleep, and other factors affecting their mood..

D. Proposed System

1) A mood calendar that allows users to track their mood on a daily basis .
2) A mood analytics section that provides users with insights into their moods, such as trends, and patterns.
3) An activities section that allows users to track the activities they do each day .
4) A notes section that allows users to add notes to their mood entries.

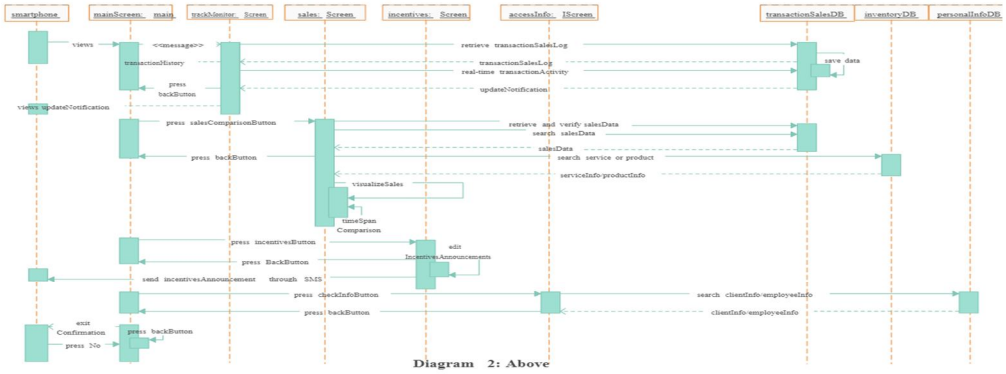
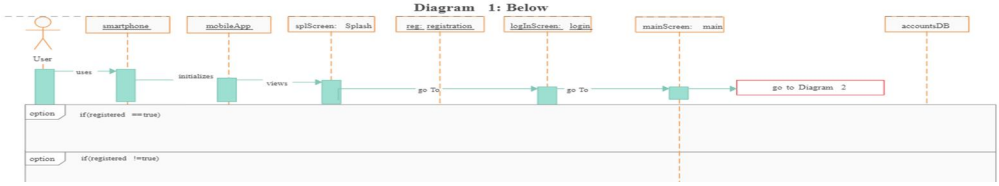


Diagram 2: Above

Diagram 1: Below



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III. METHODOLOGY

A. High-Level Process Flow:

1) Requirement gathering: This step involves gathering requirements from users .
2) System design: This step involves designing the architecture of the app
3) Development: This step involves developing the app according to the design applications.
4) Testing: This step involves testing app to ensure that it works as expected
5) Deployment: This step involves deploying the app to the app store.

B. UML Case Diagram:

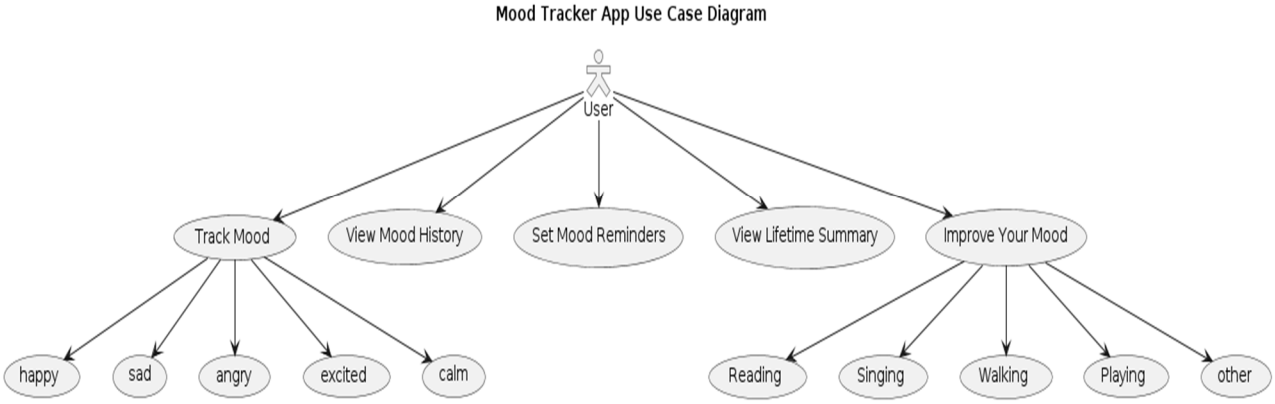


Fig 4.1 Proposed System Architecture

IV. RESULTS AND DISCUSSIONS

With increase in mental health issues there is an increase in the mental health apps. Our app is basically designed to analyze the mood of a user over a specified period of time which by default is 30 days i.e.one month. User enters certain data such as how is the user feeling, what were the emotions that user felt for the day , what were the activities user did etc. This when done by the user on a daily basis creates a mood calendar for the user for that particular month. Also a detailed pie chart analysis is given to the user for the month.

A special feature of analytics is given where user can study all the generated data. In this way our app analyses the mood of the user and provides the generated graphical data along with a mood calendar to the user. Our app also provides some information on self-awareness and mental health to the user .

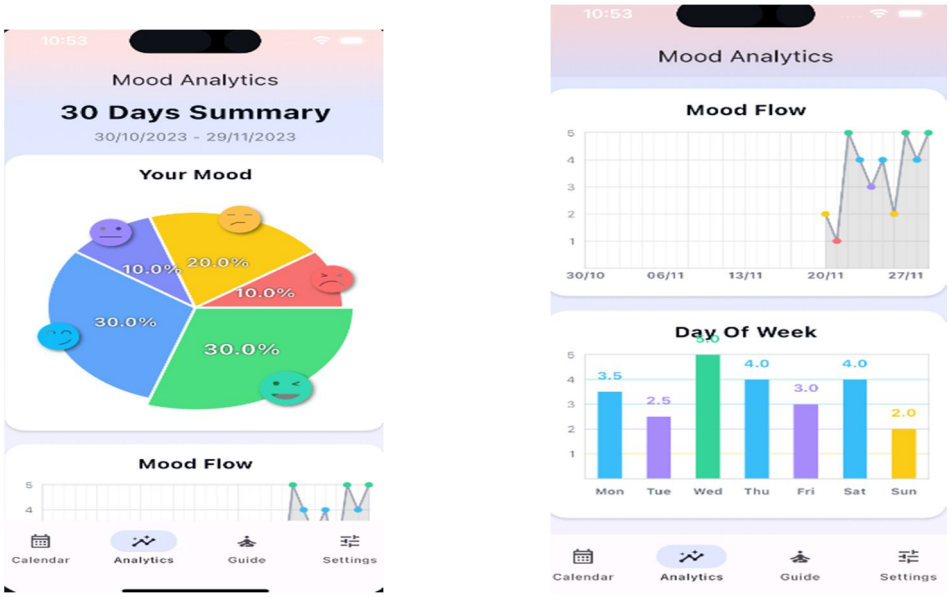


Fig-: Some Snapshots of our App

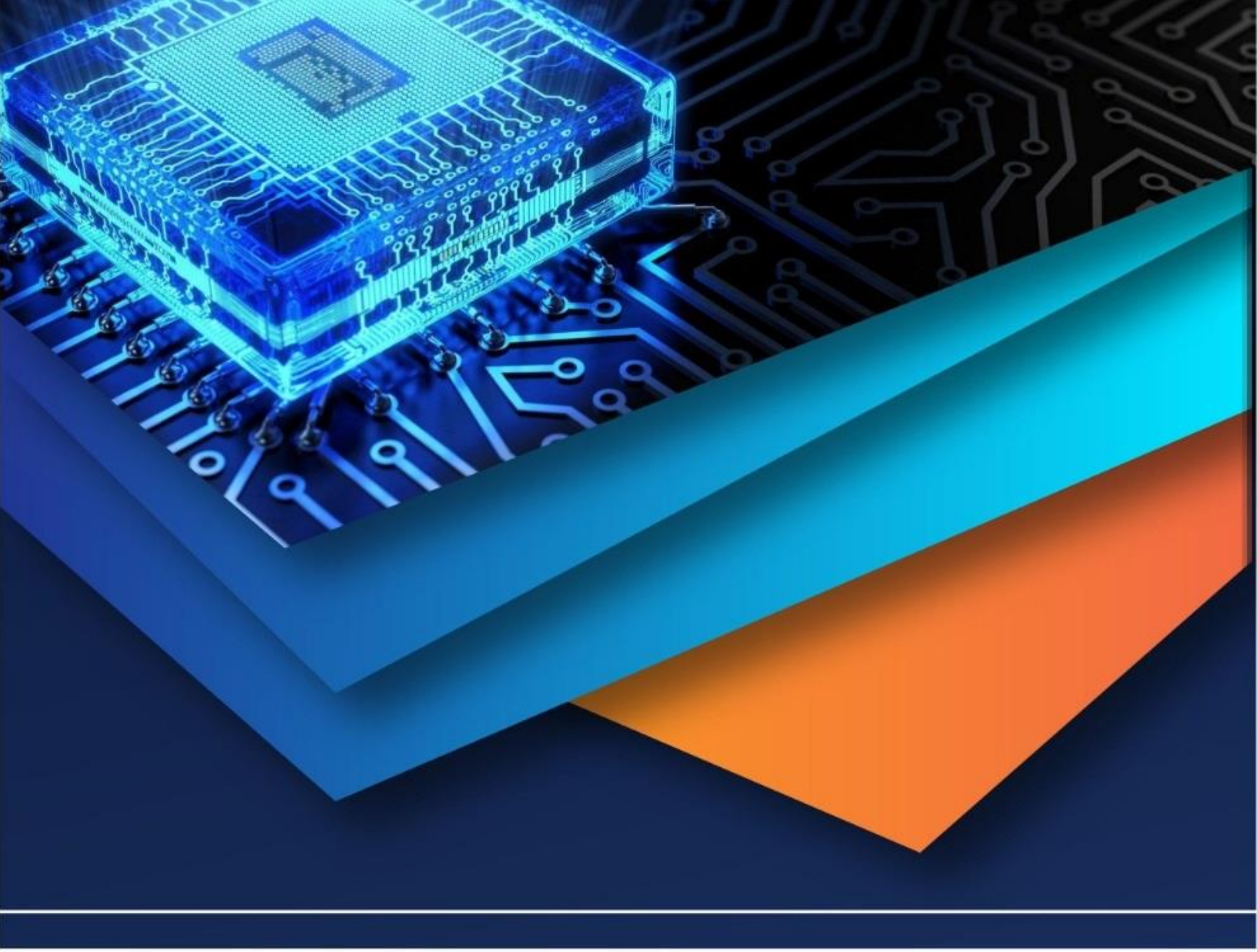
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V. CONCLUSION AND FUTURE WORK

Although there exists a lot of apps for mental health and depression but our app gives the detailed analysis of mood of user for the whole month. Moreover it gives the graphical pie chart analysis and bar graphs. Further improvements may include an additional chatbot feature . This chatbot will have a set of questionnaire that will consist of questions having answers as “yes” or “no” . At the end a score will be provided on a scale of 1 to 10 with 1 being “ happy “ and 10 being “ depressed” . Along with that some recommendations can be made of nearby psychiatrist available.

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