



International Journal of Innovative Research in Science Engineering and Technology (IJIRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)



Impact Factor: 8.699

Volume 14, Issue 5, May 2025

MoodMate-Mental Health Tracker using Machine Learning

Prof. Borhade R.B¹, Abhang Vaishnavi Walmik², Gunjal Saurabh Sunil², Pawar Kalyani Sampat²

Assistant Professor, Department of Computer Engineering, Samarth College of Engineering and Management, Belhe,
MH, India¹

Students, Department of Computer Engineering, Samarth College of Engineering and Management, Belhe, MH, India²

ABSTRACT: This study aims to develop a real-time mental health detection system using advanced Machine Learning and Image Processing techniques. Unlike traditional methods, it utilizes live camera feeds and user interactions to monitor facial expressions, eye movement, posture, and language cues for dynamic emotional and psychological assessment. The system provides continuous tracking, early warning detection, and personalized support like lifestyle suggestions or alerts for professional help. This integrated approach enhances the accuracy and responsiveness of mental health management.

KEYWORDS: Mental Health Detection, Real-Time Monitoring, Machine Learning, Image Processing, Facial Expression Analysis, Behavioural Analysis.

I. INTRODUCTION

In the modern world, mental health is a common phenomenon that influences people's responses to various events, including changes in behaviour and physiology.

However, if we focus on internal wellness for too long, it will affect our bodies. Early detection of internal health helps prevent many of the health conditions linked to it. One can see a pattern when an individual is in good internal condition. A commodity that affects our lives is mental health. There are many factors that put strain on us in our daily lives. A person's internal health may be influenced by their mortal surroundings, such as their home, workplace, or society. Palmer defines mental health as a complex cerebral and behavioural situation in which an individual's.

II. LITERATURE SURVEY

Sr.no	Paper Title	Year	Author	Description
1	An Emotional Feedback Based on Facial Action Coding System for MOOCs with Computer-Based Assessment	2022	Mohamed Soltani ; Hafed Zarzour ; Mohamed Chaouki Babahenini ; Mahmoud Hammad ; Mohammad	An innovative emotional feedback system based on facial action coding (FACS). The FACS system, which generates emotional feedback, is part of the Face Reader tool. based on a few clearly stated didactic guidelines.
2	Emotion Sense: Real-time Emotional Feedback from the Audience	2021	Andrada-Denisa Farcas ; Anca Marginean	Using a Convolutional Neural Network (CNN) to recognize facial

				expressions, the accuracy is increased by 71.162% by substituting linear SVM for softmax.
3	Emotion Detection and Characterization using Facial Features	2021	Charvi Jain ; Kshitij Sawant ; Mohammed Rehman ; Rajesh Kumar	The Support Vector Machine (SVM) method aids in the recognition of essential emotions. The Viola Jones method is used to identify the person's face and other features in the input image.
4	Facial emotion recognition	2020	Ma Xiaoxi ; Lin Weise ; Huang Dongyan ; Dong Minghui ; Haizhou Li	Deep Boltzmann Machine (DBM) and Support Vector Machine (SVM) are used to recognize facial emotions. The system's performance is enhanced by applying a straightforward fusion technique $s(t) = \sum_{i=1}^I \alpha_i * s_i(t)$
5	Real-time emotions recognition system	2016	Vinícius Silva ; Filomena Soares ; João S. Esteves ; Joana Figueiredo ; Celina P. Leão	Intel RealSense 3D SVM are used to create embedded systems with libraries that recognize emotions facial expressions.

III. PROPOSED SYSTEM

The proposed system combines textual and visual data to assess personality traits more comprehensively. It processes user-generated text through a dictionary-based approach to extract psychological features, while simultaneously analyzing visual inputs from a live camera feed. Image processing techniques are used to capture facial expressions, eye movement, and posture, providing non-verbal cues for personality analysis.

IV. SYSTEM ARCHITECTURE

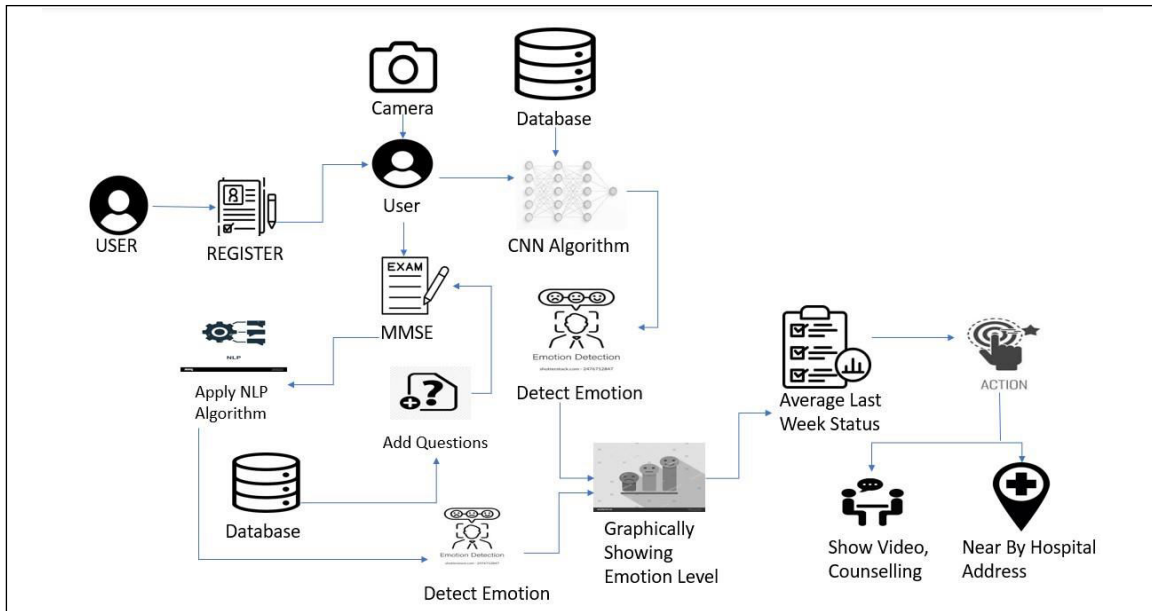


Fig 1. System Architecture

This architecture represents an emotion detection and mental health monitoring system.

- 1. User Registration:** Users enter their personal information to register for the system, and a database contains their data.
- 2. Questionnaire (MMSE):** To evaluate cognitive function, users may take the Mini-Mental State Examination (MMSE) upon registration.
- 3. Camera & CNN-based Emotion Detection:** Convolutional Neural Network (CNN) algorithms are used to analyze user photos taken by a camera in order to identify emotions.
- 4. NLP Analysis:** User answers to extra questions are examined using Natural Language Processing (NLP).
- 5. Emotion Detection:** Both CNN and NLP analysis record any emotions that are identified.
- 6. Graphical Display & Analysis:** An average emotional status over the previous week is computed, and the observed emotion levels are graphically shown.
- 7. Taking Action:** The system may display counselling videos or give information on local hospital addresses for more assistance, depending on the user's emotional state.

V. SYSTEM MODULES

1.Registration:

The user begins by registering on the platform, entering personal details such as name, gender, age, and other relevant information.

This data is used to tailor the mental health analysis and ensure demographic relevance.

It also helps in creating a user profile for periodic tracking and personalized suggestions.

All data is stored securely, respecting user privacy.

2.Graphical Representation:

Mental health data is visualized through charts and graphs.

This allows users to easily understand their emotional and psychological trends.

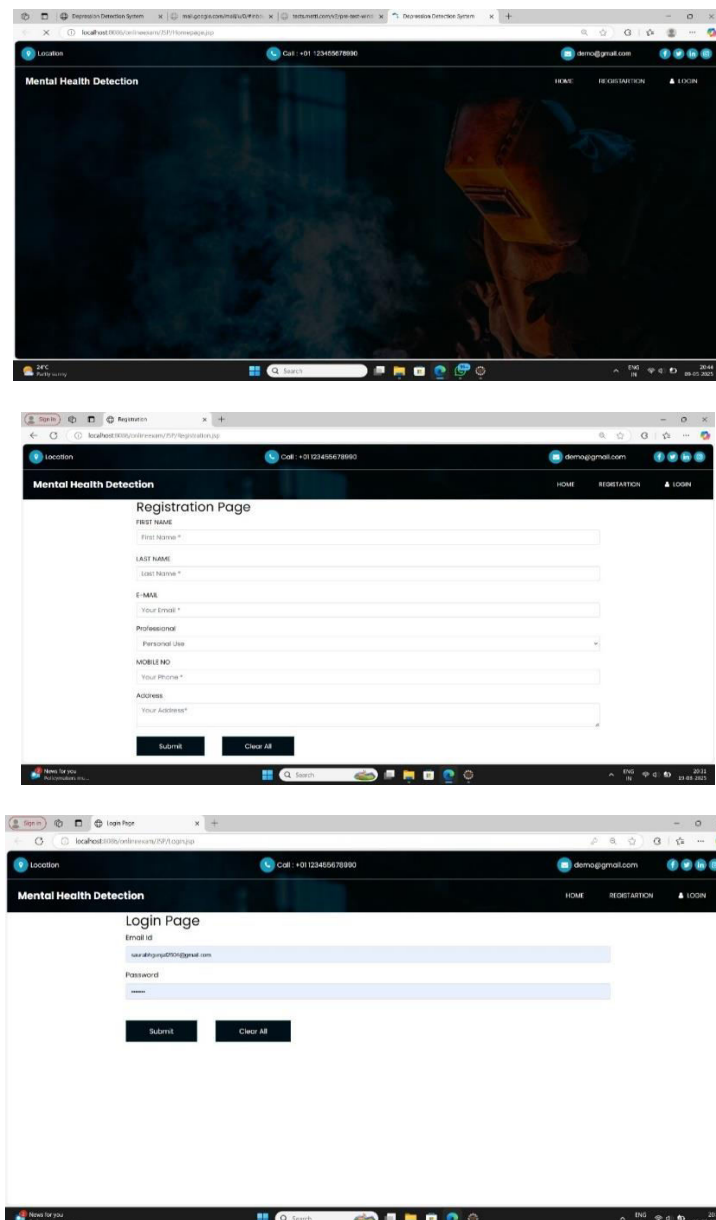
3.Display Result:

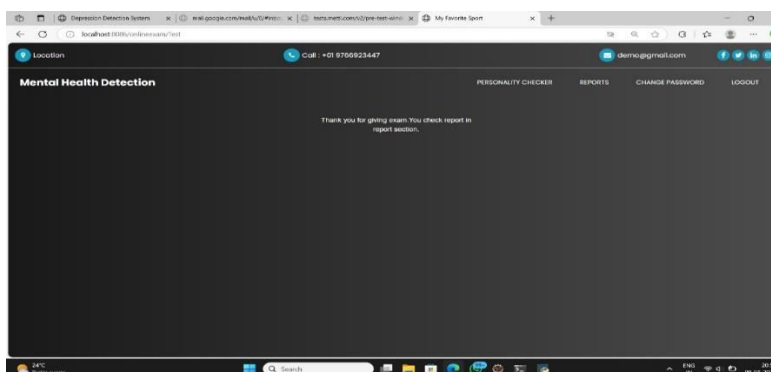
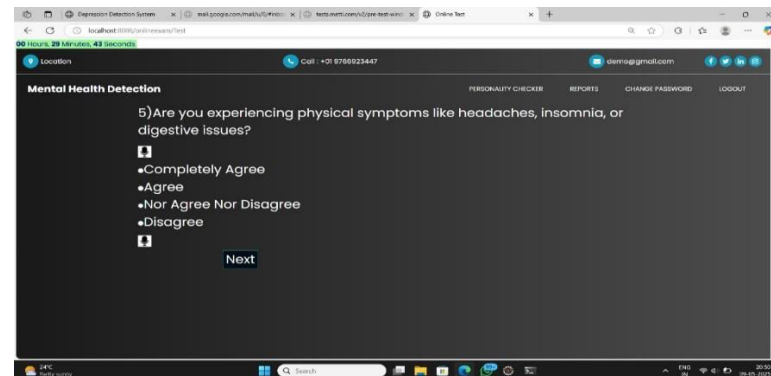
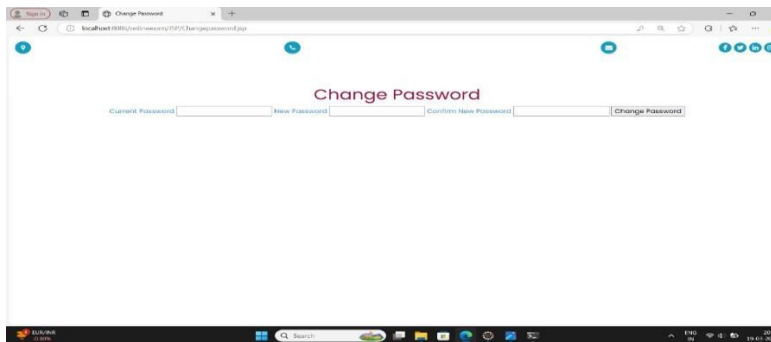
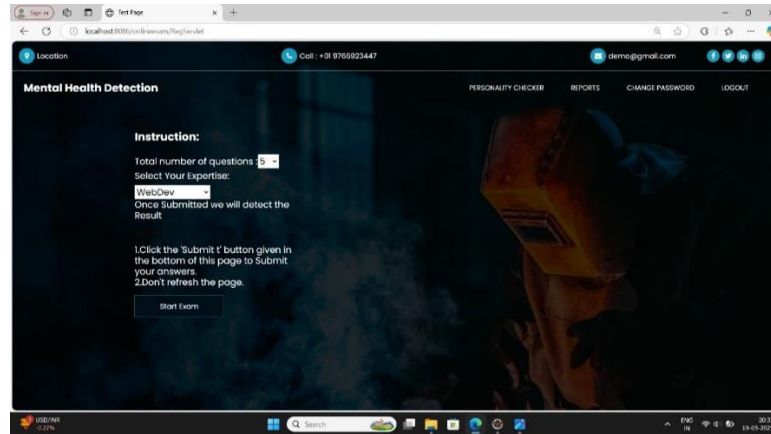
The system generates a detailed report containing mental health insights and trait scores. This report is presented in a well-formatted, downloadable PDF file. It includes interpretations, scores, and visual aids for better clarity. Users can keep it for self-reference or share with professionals if needed.

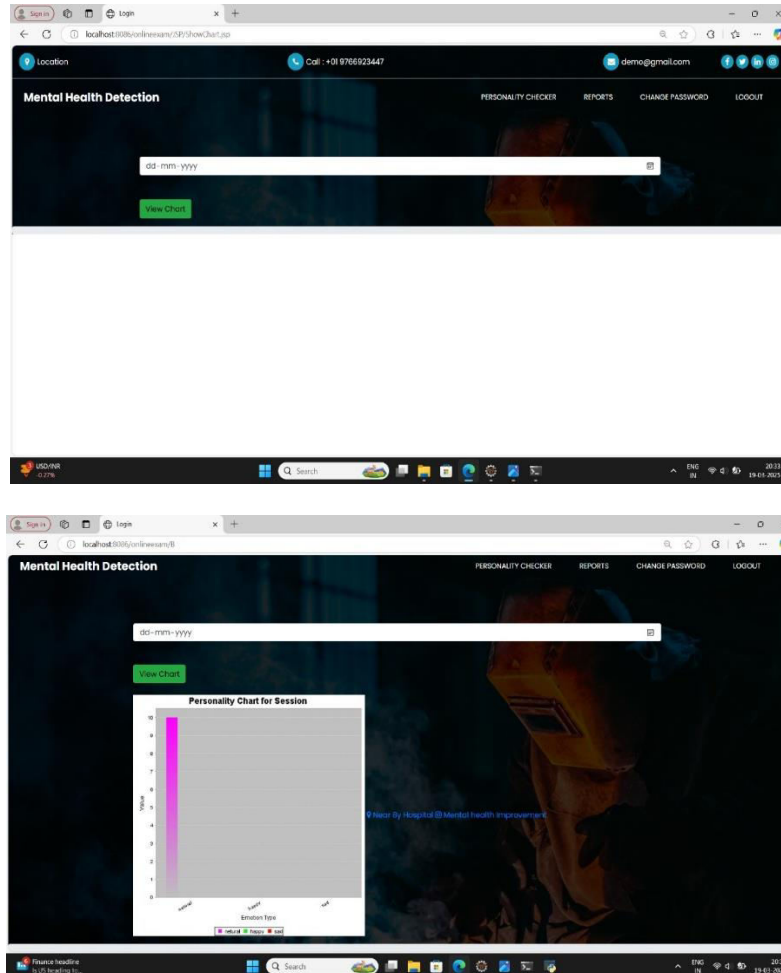
4.Suggestions:

Based on the results, the system offers personalized mental health suggestions and remedies. These may include relaxation techniques, daily routines, or motivational tips. In critical cases, it may recommend consulting a professional. Suggestions evolve over time as the user's data and patterns change.

VI. RESULT







VII. CONCLUSION

The Mental Health Tracker System is safe since it keeps track of approved users' photos to predict their mental health. The photo is automatically taken based on a time interval after the authenticated user checks in. The obtained images are used to assess the user's mental health based on a few standard conversion and image processing procedures. The technology will then examine the mental health levels using machine learning algorithms, producing more effective results.

REFERENCES

- [1] Palmer S 1989 The Health and Safety Practitioner, 8 16-18
- [2] Ahuja R and Banga A 2019 International Conference on Pervasive Computing Advances and Applications – PerCAA 2019 125 349-353
- [3] Bobade P and Vani M 2020 Proceedings of the Second International Conference on Inventive Research in Computing Applications (ICIRCA-2020) 51-58
- [4] Vaikole S Mulajkar IS More A Jayaswal P and Dhas S 2020 International Journal of Creative Research Thoughts (IJCRT) 8 5 2239-44
- [5] Schmidt P Reiss A Duerichen R Marberger C and Laerhoven K V 2018 Proceedings of the 20th ACM International Conference on Multimodal Interaction 400-408
- [6] Padmaja B Rama Prasad V and Sunitha K V N 2018 International Journal of Machine Learning and Computing 8 1 33-38
- [6] Sandulescu V Andrews S Ellis D Bellotto N and Mozos O M 2015 International Work-Conference on the Interplay Between Natural and Artificial Computation 526-532

- [7] Zhang X Xu C Xue W Hu J He Y and Gao M 2018 Sensors 2018 18 11 3886
- [8] Singh D., & Bhatia K. (2018). International Journal of Computational Intelligence 11(2), 105-112.
- [9] Miller R., & Park J. (2020). International Conference on Machine Learning and Artificial Intelligence 48, 195-202.
- [10] Ghosh S., & Das S. (2019). Proceedings of the 4th International Conference on Data Science and Machine Learning 72, 221-227.
- [11] Williams A., & Turner M. (2019). Proceedings of the IEEE International Conference on Cognitive Computing 45, 231-239.
- [12] Patel R., & Kumar V. (2020). International Conference on Advances in Computational Intelligence 19, 278-284.



INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 9940 572 462  6381 907 438  ijirset@gmail.com



www.ijirset.com

Scan to save the contact details