UNIVERSITI TEKNOLOGI MARA

MENTAL HEALTH DETECTION BASED ON FACIAL RECOGNITION USING CNN ALGORITHM

MUHAMMAD AZIM AZFAR BIN ROZIHAN

BACHELOR OF COMPUTER SCIENCE (Hons.)

JANUARY 2025

ACKNOWLEDGEMENT

Alhamdulillah, with praise and thanks to Allah for His Almighty and infinite blessings, I was able to complete this research within the given time frame.

First and foremost, I would like to thank my supervisor, Sir Ahmad Nazmi, for his dedicated guidance, advice, and emotional support during my struggles to complete this project report.

I also want to express my deepest gratitude to my parents, whose endless affection, encouragement, and sacrifices have been my greatest sources of strength and inspiration. Their support has been crucial throughout my studies.

Additionally, I extend my heartfelt thanks to my professor, Madam Ummu Fatihah, for her insightful lectures and assistance, which have significantly contributed to my understanding and the successful completion of this project.

Finally, I am immensely grateful to all my dear friends for their unwavering support, encouragement, and companionship. They have made this journey both memorable and meaningful, and their steadfast belief in me has been a powerful motivator.

ABSTRACT

The vital necessity for novel diagnostic approaches emerges because millions around the world suffer from mental health disorders including depression and anxiety. The limitations of traditional diagnostic procedures using clinical interviewing and self-report methods require improved advanced technical diagnostic approaches. The proposed system uses facial recognition paired with Convolutional Neural Networks (CNN) to analyze faces which identifies three different mental states. Researchers drew data from Kaggle while applying preprocessing techniques for normalization and augmentation before training a CNN model to recognize subtle facial expressions of mental health disorders. The system evaluation showed excellent performance through which the prototype reached over 99% precision rate for certain classification categories. Research findings show CNN technology working with facial recognition methods has great potential to improve mental health diagnosis systems. The research findings highlight the innovative power of this system to transform mental health evaluation through its dependable, noninvasive early identification and ongoing monitoring capabilities which allow healthcare providers to supply precise and timely therapeutic interventions.

TABLE OF CONTENTS