UNIVERSITI TEKNOLOGI MARA
CAWANGAN PULAU PINANG

FACE RECOGNITION ATTENDANCE SYSTEM

AHMAD IKRAM BIN SHARIPUDIN

BACHELOR OF ENGINEERING (HONS)
ELECTRICAL AND ELECTRONIC ENGINEERING

February 2025

AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name of Student	:	Ahmad Ikram Bin Sharipudin
Student I.D. No.	:	202110
Programme	:	Bachelor Of Engineering (Hons.) Electrical And Electronic Engineering – CEEE200
Faculty	:	College Engineering
Thesis	:	Face Recognition Attendance System
Signature of Student	:	.....
Date	:	Jan 2025

ABSTRACT

This project deals with the design of a Face Recognition Attendance System using deep learning algorithms and the Raspberry Pi platform. It is supposed to automate the identification and matching processes of attendance against a preregistered database through face recognition. Other traditional methods include manual attendance or fingerprint detection, but this system will try to provide an effective and time saving solution using advanced image processing. Other organizations are using conventional ways of taking attendance: manual attendance tracking, QR code-based, and Google Form-based attendance systems. The paper compares three models of face recognition: Facenet512 & RetinaFace, Facenet & RetinaFace, and VGG-Face & RetinaFace. In the experiment, the recognition accuracy of the Facenet512 & RetinaFace model is 100% (450/450 images), while those of the other two models were 96.67% and 92.67%, respectively. These findings confirm that Facenet512 & RetinaFace is indeed one of the best in face recognition accuracy. The selected model is then deployed on a Raspberry Pi, considering the feasibility and resource constraints of the platform. Python will be used as the embedded system in integrating it with an image processing library, such as OpenCV, and model implementation, like TensorFlow. Testing of the system on the Raspberry Pi confirms that it is doing well in real-time face recognition.

ACKNOWLEDGEMENT

First and foremost, I would like to take this opportunity to express my gratitude to Allah for giving me strength and perseverance throughout this project. I am thankful and grateful to Allah for the blessings bestowed upon me, especially during the implementation of the Final Year Project for my bachelor's degree program at UiTM Pulau Pinang.

I would like to express my deepest gratitude to my supervisor, Ts. Ir. Dr. Samsul Setumin, who always guides and supports me consistently in the whole research of this project; owing to such great support by him, I am so thankful. His eruditeness, criticism, and commitment had highly influenced the course and quality of my work. I treasure all the advice, inspiration, and encouragement during this project.

Besides, I would like to appreciate my friends and classmates for always helping me answer all my inquiries to go through this journey. I would also like to thank my family and my special one for their unwavering support and understanding throughout my bachelor's journey. The encouragement I have received is my biggest strength, and I may not be able to achieve this far without the love and support.

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