DESIGN AND BUILD AUTOMATIC DOOR FACIAL MASK DETECTION AND BODY TEMPERATURE MEASUREMENT TO PREVENT COVID-19 USING ESP 32-CAM

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ABSTRACT

In Indonesia, Corona Virus Diseases 19 (Covid 19) began to spread in February 2020. Researchers have an innovation that functions to prevent the spread of the COVID-19 virus by designing an "Automatic Door Design for Face Mask Detection and Body Temperature Measurement". Using the ESP 32-CAM as the main controller which is equipped to send temperature monitoring data to a predetermined computer and to detect faces and the MLX90614 temperature sensor is used because it has proven accuracy in measuring body temperature. The door that is made will also be equipped with a 16x2 LCD and LED to alert when a body temperature is detected as less than 34°C and more than 37°C. The face detection method used is the Haar Cascade Classifier method. The results of the design of this door are expected to assist in monitoring the body temperature of visitors to minimize the spread of COVID-19. Tests carried out on the automatic door tool for detecting face masks and body temperature using Arduino UNO and ESP-32 Cam microcontrollers include testing the accuracy and precision of ultrasonic sensors, MLX90614, testing ESP-32 Cam and sending data, testing system resets and testing success. The ESP-32 Cam can be used as a device to detect masked faces with the help of simple machine learning using a cloud-based Teachnable Machine with 3 Classes, namely Mask, No Mask, and No Object. Based on 10 success tests, the system success percentage is 100%.

Keywords: Corona Virus Diseases 19, ESP 32-CAM, Arduino UNO, ultrasonic sensor, MLX90614 sensor.