Design a Facial Recognition Smart Door System Based on Esp32 Cam Using IoT Technology

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ABSTRACT

Smart Door is a smart door system that can be managed using advanced technology, such as facial recognition using a microcontroller or Android device. Smart door systems provide several benefits such as better security, time savings and ease of access and management. The aim of this research is to design and develop a Smart Door system that uses facial recognition. This research aims to design a Smart Door system using facial recognition based on IoT technology, implement the designed Smart Door system, measure the performance of the designed system in recognizing users' faces and find out the level of security that can be improved with the Smart Door system. This research shows that the Smart Door system with facial recognition can work well. Facial recognition is carried out using ESP32-CAM, while the Blynk application is used as an additional application to open the door via the user's smartphone. This Smart Door system can increase the level of security for system users, by using camera sensors as door openers and ultrasonic sensors as initial detection if there is movement. Basically, this system works if the user brings their face close to the ESP32-Cam camera, then the camera will detect whether the face is the same as the face that has been saved in the system or not. Then, an ultrasonic sensor is used to detect something approaching. If the ultrasonic sensor detects something, it will send a notification to the user's Blynk application, so that the user can find out the information.

Keywords: *Smart Door, IoT, Face Recognition, Blynk*