

ABSTRACT

The door security system is a device or technology designed to protect doors from unauthorized access and prevent break-in attempts. Currently, technology is rapidly advancing, particularly in the field of door security. Technologies such as RFID and fingerprint recognition have drawbacks, such as lost cards or suboptimal fingerprint recognition, and the occasional forgetfulness of PINs or passwords. To address these issues, a door security system has been designed using Voice Recognition Module V3 for opening and closing a Solenoid Door Lock, with additional protection provided by the Vibration Sensor SW-420. The system uses the NodeMCU ESP32 microcontroller, integrated with the Blynk platform to send warning notifications to a smartphone in the event of an intrusion attempt. The system is also equipped with an LCD screen. The SW-420 Vibration Sensor triggers a buzzer and sends warning notifications to the Blynk application in the Medium (>1,600 bits) and High (>1,900 bits) categories based on the detected vibrations. The accuracy of the voice data in the Voice Recognition Module is validated by testing the success rate with 3 registered users and 3 unregistered users. Registered users achieved a 100% success rate in Low noise conditions (44dB) and 30% in High noise conditions (72dB), while unregistered users achieved a 50% success rate in Low noise and 0% in High noise conditions. Vibration sensor measurements showed an average of 526 bits for the Low category with a generated voltage of 0.64 volts, 1,637 bits for the Medium category with a voltage of 2.00 volts, and 1,972 bits with a voltage of 2.42 volts in the High category. The SW-420 Vibration Sensor successfully sent real-time notifications in the Medium and High categories.

Keywords: *Internet Of Things, Voice Recognition Module, Blynk, Door Security System*