

ABSTRAK

Kekurangan dari pengunci konvensional ini diantaranya adalah penghuni rumah harus membawa banyak kunci saat bepergian, kunci mudah diduplikat, kunci mudah dibobol, kunci mudah rusak sehingga mengurangi kemudahan dan keamanan. Pintu merupakan komponen wajib sebuah rumah.

Teknologi NFC (Near Field Communication) merupakan pengembangan dari teknologi RFID (Radio Frequency Identification) yang sudah ada sebelumnya. Voice Recognition atau pengenalan ucapan / suara adalah suatu sistem yang dapat mengidentifikasi seseorang melalui suaranya. Modul pengenalan suara atau Voice Recognition ini dapat digunakan pada banyak aplikasi pengontrolan yang membutuhkan pendeteksian bukan hanya suara melainkan percakapan seperti home automation.

Pada pengujian RFID dapat disimpulkan berhasil. Pembacaan tag oleh RFID reader agar maksimal harus dilakukan pada jarak 1cm – 4 cm yang memiliki tingkat keberhasilan pembacaan tag 100%. Sedangkan untuk sensor voice recognition dapat membedakan suara orang yang terekam dan yang tidak terekam pada program. Pada pengujian voice recognition ini bahwa beberapa kali perintah harus diucapkan agar voice recognition mampu mengolah perintah yang diberikan agar sama dengan hasil sampling suara. Tingkat keberhasilan pada pengujian kali ini 90% berhasil, sehingga dapat disimpulkan pada modul voice masih dapat kekurangan. Hal ini disebabkan oleh pengucapan kata perintah yang tidak terlalu jelas maupun terlalu lemah. Hasil pengujian waktu pengiriman data database firebase pada jarak 1cm - 4cm memiliki rata – rata waktu 3.2 detik. Sedangkan pada pengujian voice recognition memiliki rata – rata waktu 4.5 detik.

Kata Kunci : RFID (Radio Frequency Identification), Voice Recognition, Internet of Things, Firebase, ESP8266

ABSTRACT

The disadvantages of this conventional lock include that the occupants of the house have to carry lots of keys when traveling, keys are easily duplicated, keys are easy to break into, keys are easily damaged thereby reducing convenience and security. The door is a mandatory component of a house.

NFC (Near Field Communication) technology is a development of the existing RFID (Radio Frequency Identification) technology. Voice Recognition or speech / voice recognition is a system that can identify someone by their voice. This voice recognition module or Voice Recognition can be used in many control applications that require the detection of not only voice but conversations such as home automation.

In the RFID test it can be concluded that it is successful. Tag reading by an RFID reader must be carried out at a maximum distance of 1cm – 4 cm which has a 100% tag reading success rate. As for the voice recognition sensor, it can distinguish the voices of people who are recorded and those that are not recorded in the program. In this voice recognition test, several commands must be spoken so that voice recognition is able to process the commands given so that they are the same as the results of the voice sampling. The success rate in this test was 90% successful, so it can be concluded that the voice module still has deficiencies. This is caused by the pronunciation of the command word that is not too clear or too weak. The test results when sending firebase database data at a distance of 1cm - 4cm have an average time of 3.2 seconds. Meanwhile, the voice recognition test has an average time of 4.5 seconds.

Keywords : RFID (Radio Frequency Identification), Voice Recognition, Internet of Things,

Firebase, ESP8266