ABSTRACT

Near Field Communication is one of the latest communication technology that uses radio waves. Near Field Communication technology until now growing with owned technology could replace some of the roles that the system has been running at the moment, such as payment process and ticketing. At some certain rooms required security access system that not only use physical keys but with a virtual key that has more security and can be controlled by its owner. By utilizing Near Field Communication technology embedded in smartphones, designing a special door which integrated with a NFC-enabled smartphone and also a web server is a solution to address the security issues of the room.

In this final project, a NFC Reader has been designed and implemented for room's security system. The system consists of NFC-enabled smartphone's tag and NFC Reader. NFC Reader reads NFC-enabled smartphone's tag which then its access right authenticated in web server. The result of authentication becomes the trigger of attached functions, that is solenoid (lock/unlock key), buzzer (alarm), and PIR sensor (motion detection).

The result of testing on built NFC Reader shows a pretty good relative performance on every test parameter. Produced average access time until the key is unlock based on tapping distance is 0.54s. While produced average access time based on tapping degree is 0.54s. For the success rate of attached functions with NFC reader is 100%.

Keywords: *Near Field Communication, smartphone, application mobile, room, key*