

## ***ABSTRACT***

*Near field communication is one of radio wave-based wireless communication technology. This technology is developed to be able to replace many existing systems, such as payment method, ticketing system, and security system.*

*By using Near field communication technology which can be found easily on a smartphone, the development of a special door integrated with a cellphone could be the solution to room security. This system consisted of NFC transponder from a smartphone with NFC technology and an NFC reader located outside the door. The NFC Reader will read the NFC Tag from the smartphone and which triggers an identifying process of access right through a micro-controller. When the outcome of the identifying process comes out as true, another trigger will be sent to another system-integrated electronics, such as solenoid, in the form of elektromagnetic key which will be opened if the microcontroller granted access. After the result is confirmed, the system will sent a notification via SMS to the user. To further improve the security system, a record of accessible user will be created in a data logger. There will be an alternative system using touch sensor with combination code if the NFC system is not working/activated.*

*By this final project, the writer is expected to produce the automatic door lock system that can guarantee a higher level of security system by applying NFC tag as a virtual key, so non-registered NFC tag user will not be granted access to pass the door.*

*Key word: Near Field Communication, smartphone, NFC reader, Electromagnetic Lock, touch sensor*