UNIVERSITI TEKNOLOGI MARA

RFID BASED COMPUTER SECURITY SYSTEM

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ABSTRACT

In our daily lives, Radio Frequency Identification (RFID) has been used unintentionally when we use public transit, board airplanes with our passports, make purchases in stores, and pay tolls on motorways. These capabilities make it possible for users to access laptops and desktop computers using this technology. This is due to the fact that, like everyone else, we humans occasionally forget our own passwords for accounts on websites like Facebook, Google, and Windows. It is shown that users no longer need to memorize their laptop or computer's password to log into the Windows operating system, proving that technology is meant to make people's lives easier. An Arduino Uno and an RC-522 module can be used as microcontrollers to build a project that lets users access their computers without entering their passwords. However, to create such a programme, one must first understand and comprehend the C language that the microcontroller uses. This project's goals are to provide a different technique for users to log onto computers, to make computers easier for users to access with an RFID system, and to find easy ways to access Windows devices.

Keywords: Radio Frequency Identification (RFID), Computers, Arduino Uno, RC-522 module, Windows

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CHAPTER 1

INTRODUCTION

1.1 Research Background

The chapter presents the overview of the RFID Based Security Computer Security System. The chapter consists of the research background, problem statement, aim, objectives, and significance of the study.

RFID stands for radio-frequency identification. It is a technology that allows data to be transmitted wirelessly, making it possible to manage, track, and identify objects or people. Three main parts usually make up the system: readers, RFID tags, and a backend database or system. RFID basic concepts were developed in the 1940s and 1950s in response to significant advancements in radio frequency communication research and radar technology during World War II. However, a number of people have contributed over time to the real development and commercialization of RFID.

The electrical engineer and inventor Mario Cardullo made a substantial contribution to RFID technology. Cardullo submitted a patent application in 1973 for a passive radio transponder intended for use in identification. His contributions prepared the way for the advancement of RFID technology. German engineer Klaus Finkenzeller first used the word "RFID" in 1984 when writing "RFID Handbook: Fundamentals and Applications in Contactless Smart Cards, Radio Frequency Identification and Near-Field Communication." Finkenzeller's book advanced awareness of and acceptance for RFID technology in addition to helping to popularize the word.

RFID tags are made up of a microchip that has a unique ID and, occasionally, further information. In addition, the tag has a radio signal broadcast and receive antenna that is protected by an encapsulation. There are two types of RFID tags: active and passive. While passive tags rely on the energy from the RFID reader's signal for transmission, active tags have their own power source, usually a battery, and can transfer signals over longer distances.