RFID Based E-Passport System

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Abstract— **The Electronic passport is the digital version of the paper passport to provide stronger identity authentication. Passport verification and checking which a very time-consuming process. To be ease identity checks, lessen the amount of human errors, protect against manipulation of travel documents and improve border security issues hence, new passport turned out to be much more intrusive than the traditional one. The proposed system simplifies this process with RFID card where the unique identification number is stored which corresponds to the information of the person. The information includes the name, nationality, address etc. along with attach the copy of the required certificates required according to the application. The information is transferred to computer with the help of RF transceiver. It may also include some other features such as buzzer for audio visual indication and system to lock the door. This proposed system uses Radio Frequency Identification (RFID) is a technology that uses wireless communication for identification purposes. The key characteristic that differentiates one RFID application from another is the purpose of identification.**

I. INTRODUCTION

The e-passport, as it is sometimes called, represents a bold initiative in the deployment of two new technologies: Radio Frequency Identification (RFID) and biometrics. System are wireless technology for automatic identification They bring forth the era of next generation ID cards. several national governments plan to deploy identity cards integrating RFID and biometrics for domestic use. We explore the privacy and security and other issues of the e-passport in this article cards. RFID and biometric technologies when combined, promise to reduce fraud, ease identity checks, enhance security. International Civil Aviation Organization (ICAO), a body run by the United stated has made it mandatory for the citizen to e-passport.

II. TECHNICAL OVERVIEW

RFID is an auto ID device like Barcode, Smart cards, Biometric technologies (Retinal scans) and optical character recognition etc. Special feature of this technology is that there is no need of line of sight reception as required in some other technologies. In RFID systems the items are marked with tags.　　These tags contain transponders that emit messages readable by specialized RFID readers. Most RFID tags store some sort of identification number; for example a customer number or product code. A reader retrieves information about the ID number from a database, and acts upon it accordingly. RFID tags can also contain writable memory, which can store store information for transfer to various RFID readers in different locations. RFID tags fall into two general categories, active and passive, depending on their source of electrical power. Active RFID tags contain their own power source, usually an onboard battery. Passive tags obtain power from the signal of an external reader. RFID readers also come in active and passive varieties, depending on the type of tag they read. Then based on their frequency range of transmission it is classified as LF, HF, VHF and UHF tags.

III.. IMPLEMENTATION DETAILS.

1. RFID System

Basically RFID (Radio Frequency Identification) is a wireless link to uniquely identify objects or people. RFID enables identification from a distance without requiring line of sight. The RFID system comprises the RFID tag/card, RFID reader, backend database and a control unit. RFID systems have two broad categories passive and active. The RFID reader communicates with the RFID tag through tag interrogation.

2 RFID Tags/Card

RFID tags/cards consist of an Integrated circuit attached on an antenna that is printed, etched or stamped onto a base which is often a paper substrate of Polyethylene Terephthalate (PET). The inlay which is the combination of the chip and antenna is then inserted amid the printed label and its adhesive backing or it is either placed in a more durable structure.

3 RFID Reader

The RFID reader is also known as an interrogator, it provides the connection between the tag data and the software that needs the information

4. Arduino Uno board

It is a microcontroller board based on the ATmega 328P. It has 14 digital pins, 6 analogue inputs, a 16MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. Fig 2-5 shows a typical Arduino Uno board. One has to simply connect it to a computer with a USB cable or power it with an AC-to-DC adapter or battery to get started.

Arduino Uno Board.

5. LCD

The abbreviation LCD stands for Liquid Crystal Display. A LCD is a flat-panel electronic visual display that makes use of the light modulating properties of liquid crystals. It can be defined as the combination of two states of matter – liquid and solid. LCDs have both solid and liquid properties. They maintain their corresponding states with regard to another. Liquid crystals they do not radiate light directly. LCDs display arbitrary or fixed images with low information content, which can be displayed or hidden for example digits, 7-segment displays as in a digital clock and pre-set words.
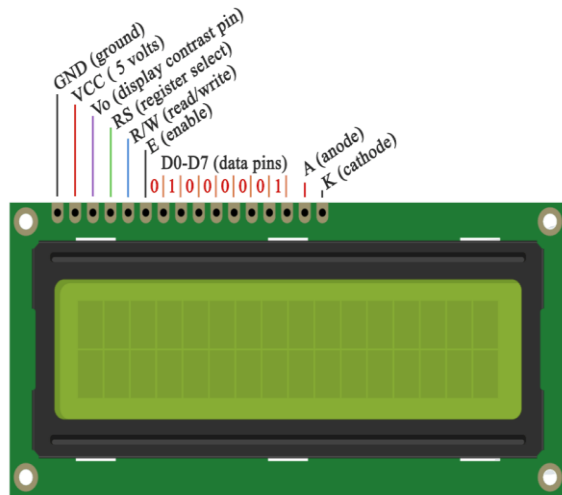
IV. Results

The biographic information of the e-passport holder was able to be electronically stored and retrieved without any difficulties. This project ensures that privacy is ensured as the holder's identity will not be revealed to anyone as these details are stored electronically but will only be revealed to the authorized personnel who can access the serial monitor. Problems such as photo substitution and forgery are inevitable and problems like look-alike fraud and data duplication are eliminated. These results show that security is highly ensured. The fast response of the RFID cards means that movement at the border checkpoints will be fast.

VI.Conclusion

This project gives clear idea about the Electronic passport system which is much more beneficial for the airports and universities. It also reduces the burden of documentation as well as it reduces the time consumption. We analysed the major current and potential uses of RFID in identifying documents and the most important feature of this project is security, this will make the system centralized. The security of the system can be further increased by adding biometric information such as fingerprints, palm scan, iris scan, digital signature and another active authentication in the passport system**.**

VI.Future Scope

One card Policy throughout country and also the security of the system can be further increased by adding biometric information such as fingerprints, palm scan, iris scan, digital signature and other active authentication in the passport system.

VII. References

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