

Smart Passport Verification System Using Radio Frequency Identification (Rfid)

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Abstract- Proposal for designing a current smart passport is same as regular one but in this we are adding a tiny integrated circuit which is contactless inserted at back cover, which acts as secure storage device of the same data visually displayed on the photo page of the passport. In this we are implementing a new technique of programming the system for creating a valid, unique and the electronic document. Where in electronic identification the electronic sign or mark is received from the user and attached to the electronic document. Moreover, the smart passport will have a new interface to technology like it prevents anti-fraud, keeps data secured.

Now-a-days privacy is serious issues since there no encryption between the readers and the E-passport. However, security issues such as authentication, data protection and control techniques cannot be one build in one process so, in this paper we designed and implemented a prototype.

Keywords: Biometric (finger prints), RFID tags

1. INTRODUCTION

Radio frequency identification (RFID) is an automatic identification relying on storing and remotely retrieving data using devices called RFID tags[1]. Or in other words RFID is a technology that uses communication via electromagnetic ways to exchange data between a terminal and an electronic tag attached to an object for the purpose of identification and tracking. Each tag stores a unique code that has a unique identity and each card can store up to 2kb of data.

Due to the special and unique features of RFID every government decided to fuse this technology in upcoming or future generation because the biometric technologies of identification card which provides more secure for whole world, enhance security and successfully implementation of biometric techniques in document such an E-passport aims to strength of border security by decreasing the possibility of copy or fake passport.

A typical tag of RFID includes an antenna which is used to transmit and receive Radio Frequency signals using wireless communication. The whole system is embedded in a chip to make the system simple and user friendly. The RF frequency is set in the system in order to receive the required frequency. Especially in the passport verification, traditional manual verification system is being used. This paper gives te clear information on smart way of verifying the passport details.

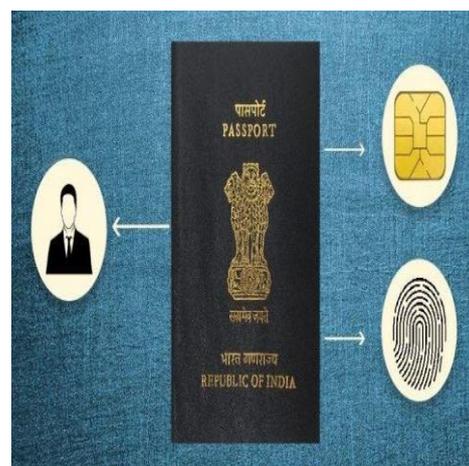


Fig.1 Electronic passport

2. HOW RFID CHIP WORKS?

Basically, RFID is a chip consists of very small memory. When it is presented near a computer with radio frequency scanner, the scanning device provide a maximum energy so, that the chips can broadcast the information in them so, that the computer can read.

The broadcasted data is recorded in the computer which is connected to the system. The data can be reused for future applications too. Radio chip which is embedded plays a major role in predefining the data in the passport.

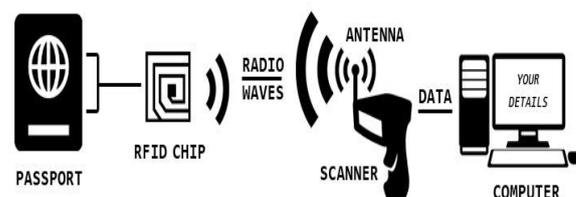
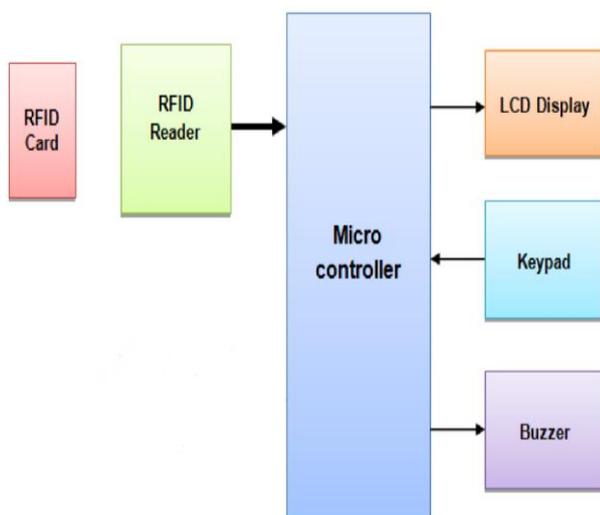


Fig 2: Block diagram of the system

3. WORKING VIEW IN DETAIL

The passport designed is an authentication system where the passport holder is authenticated through RFID technology and an IC (integrated circuit) is used for storing of data and processed it for using modulation and demodulation of RF signal[4].

The holder will contain the RFID tags in which it contains the whole details of passport name, date of birth, UID no., nationality, etc. in this system the RFID also contains the unique identity and then that details are fed into the computer when the tag has to be swiped over the reader thus the information is provided by a micro controller if a data matches then a micro controller displays an information that tag is recognized or else it just displays a message that the card is not matched on the LCD screen [3].



4. SOLUTION FOR RFID INTEGRITY

READER PROTECTION:

- In some case readers can reject tag replies with anomalies in response times or signal power levels which don't match the physical properties of tags. If passive tags are used, this can be a way to prevent spoofing attempts.
- On the top of this, the data transmitted between the reader and the RFID application server could require verification of the reader's identity. Authentication mechanisms can be implemented between the reader and the backend application to ensure that information is passed to the valid processor.

5. READER DETECTORS:

RFID environments can be equipped with a special device to detect unauthorized read attempts or transmissions on tag frequencies. These read detectors may be used to detect unauthorized read/update attempts on tags, if they are used together with specially designed tags that can transmit signals over a reserved frequency, indicating any attempts to kill or modify tags.

6. CONCLUSION

As, RFID technology is having more sophisticated applications will be used as the capability to receive, store and forward data to remote sink source. Most of the RFID network includes a wide range of automation technologies. Those sensors are RFID readers, RFID bar code scanners, RFID writers, RFID controllers. In this study a solution had been provided for the problem to reduce fraud, enhance security and identity check and it also decreases the burden of documentation and thereby reduces the time consumption and even in future we can modify more effectively.

7. APPLICATIONS AND ADVANTAGES

- Security application.
- This project can be used in airports, government offices and in banking sector.
- To reduce fraud. Biometric identification, face identification

8. FUTURE DEVELOPMENT

- Voice feedback system can be included.
- If in case biometric fail then OTP or pin will be provided.
- Face detection can be provided for better security purpose.
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9. RESULT

Whenever traveller arrives at the airport, they should swipe their RFID tag in front of the RFID reader. The information stored in RFID card will be read by the card reader to check for authentic.

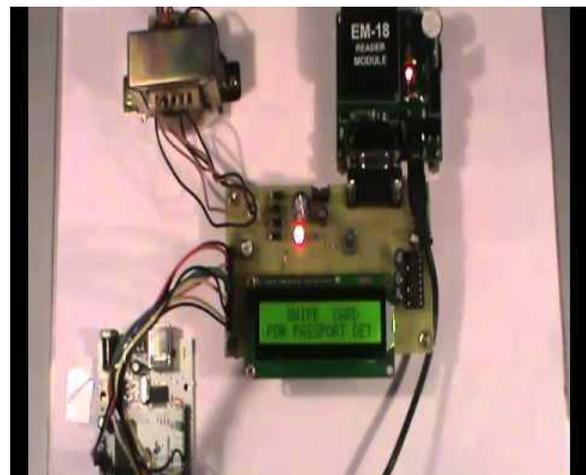


Fig.3 Implimentation

When there is buzzer sound it indicates that the card is detected and the user have to enter the password. If the password entered is correct then it shows the details of the traveler in computer. If it is wrong then it shows unauthorized person or wrong password.

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