

Digitalization In India using RFID Technology and Raspberrypi

#¹Prakash Deshmukh, #²Sailaja Seemalamudi, #³Dr.Shinde J.N



¹prakashdeshmukh487@gmail.com,

²sravyals7@gmail.com,

³principal063@gmail.com

#¹²³Department of E&TC,
Alameen college of Engineering, Pune.

ABSTRACT

There has been rising demand for secure system that must be dependable and quick respond for the industries and company. RFID (Radio Frequency Identification) is one of the consistent and fast means of identify the material object. In the long-ago the barcode's are more preferable as compared to RFID because of their cost but now a day's RFID are easily available and are more convenient to use. Research has made some drastic changes which makes its programming a lot shorter and easier. To overcome problem of showing any card for particular government officer. we are going to develop a system which will save time and hassle for the officer wanting to check the document of the particular user whose information is stored in the data base

Keywords: RFID Card, Reader, Raspberrypi, Digitalization.

ARTICLE INFO

Article History

Received: 14th March 2018

Received in revised form :

14th March 2018

Accepted: 19th March 2018

Published online :

20th March 2018

I. INTRODUCTION

RADIO FREQUENCY IDENTIFICATION (RFID):

This paper provides knowledge on radio frequency identification (RFID) technology. Initially RFID tags were made to eventually replace barcodes in different chains. Their advantages are that they can be read wirelessly and with no line of sight, contain more data than barcodes, and are stronger. As the paper describes the recent technology, include the frequency ranges used and standards required. With the increase in ubiquity of RFID tags, however, privacy became unease. The paper outlines probable attack that can go against one's privacy and it also describes contradict measures. The RFID technology did not stop at thing-level tagging. The paper also presents current research that focuses on locating and tracking labeled object that move. Since the uses for RFID tags are so extensive, there is a large interest in lowering the costs for production of RFID tags. It turns out that printing tags may become a possible alternative to traditional production.

RFID tags or simply "tags" are small transponders that respond to queries from a reader by wirelessly transmitting a serial number or alike identifier. They are greatly used to track items in production environment and to label items in supermarkets. They are usually thought of as a highly developed barcode.

However, their possible region of use is much bigger. This paper presents applications that are probable using RFID technology such as locate access control, location tracking, billing easily and others. RFID tags are expected to multiply into the billions over the coming few years and yet, they are been treated the same way as barcodes without taking into consideration the impact that this advanced technology has on privacy.



Fig 1. RFID card and Reader

II. PROBLEM STATEMENT

To overcome problem of showing any card for particular government officer. we are going to develop a system which will save time and hassle for the officer wanting to check the document of the particular user whose information is stored in the data base

III. LITERATUREREVIEW

Radio Frequency Identification (RFID) is an affordable technology that can be used for applications such as security, tracking, and access control. This Application Note will detail the required steps to program a RFID Card Reader for access control in an Arcelor Mittal Plant. This Application Note will show and describe the programming needed to successfully identify the unique digital ID of a RFID tag and either grant or deny it access. These steps include the use and programming of a microcontroller.[1]

RFID, radio-frequency identification, uses electromagnetic fields to transfer data. RFID is not a single product but rather a system, which is composed of: a RFID tag (transponder), reader (transceiver) and back-end application system (or database), which require the support of a computer network [2]. For this system the transponder is a passive RFID tag. Passive tags are cheaper, lighter, and smaller than the other tag options. That is because unlike other RFID tag types, passive tags do not require batteries. Passive tags use radio energy transmitted by the reader as a power source. Since the RFID reader powers the RFID tag the tag must be within 2 to 5 inches of the RFID reader in order to be read. It is also because the tag is passive that our RFID reader must be active. The RFID reader not only communicates with the RFID tag, but a microcontroller as well. The microcontroller in this application will serve as the middleman between the RFID reader and the database. The microcontroller notifies the reader if the serial identification code from the RFID tag has the clearance to gain access to the plant or not.

IV. PROPOSED MODEL

Flow Chart of the Proposed System:

The granular details and specifications will be explained. And we also explain the flow of the system using algorithm.

- (1) Start.
- (2) Centralized server running.
- (3) RFID reader is waiting to get a tag.
- (4) Data simultaneously send to the controller.
- (5) Authentication process identification
- (6) All documents check from the database server
- (7) Display the customer ID on LCD
- (8) The authentication will be automatically success from the user card.
- If (card is not valid) Authentication failure;
- Else
- Card is valid;
- (9) After success of the system maintain the users log.
- (10) End.

Module (user)

- Login
- Registration
- Data Base server RFID Tag
- RFID Reader

System (admin)

- User Record
- Maintain Authentication Module
- Unique record fetch
- Tag Identification

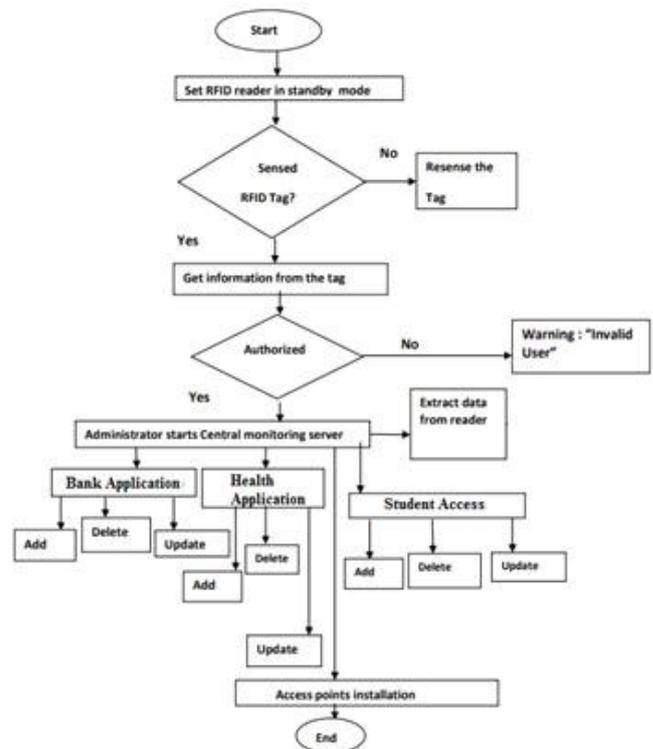


Fig 2. System flow

V. SYSTEM SPECIFICATION

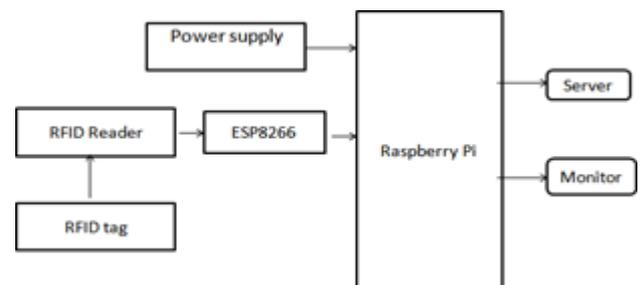


Fig 3. Block diagram

Raspberry pi:

A raspberrypi is a small credit card sized computer with Wi-Fi or LAN for the connectivity with internet. The Raspberry PI B is connected with Wi-Fi or LAN for the connectivity with internet. Also raspberrypi can be connected to the various input and output of the system. thus the Raspberry Pi is the main processor of this system. It having the inbuilt ARM processor. The headlining feature of the Pi3 is the built in Wi-Fi and Bluetooth and a quad-core 64-bit

ARM Cortex A53 running at 1.2GHz. It is a usable desktop computer. The Raspberry Pi 3 Model B is the third generation Raspberry Pi. This powerful credit-card sized single board computer can be used for many applications and supersedes the original Raspberry Pi Model B+ and Raspberry Pi 2 Model B. Whilst maintaining the popular board format the Raspberry Pi 3 Model B brings you a more powerful processor, 10x faster than the first generation Raspberry Pi



Fig 4. Actual view of Raspberry Pi

RFID Reader:

An RFID reader's function is to interrogate RFID tags. The means of interrogation is wireless and because the distance is relatively short; line of sight between the reader and tags is not necessary. A reader contains an RF module, which acts as both a transmitter and receiver of radio frequency signals.

RFID Tag:

RFID tagging is an ID system that uses small radio frequency identification devices for identification and tracking purposes. An RFID tagging system includes the tag itself, a read/write device, and a host system application for data collection, processing, and transmission.

VI. CONCLUSION

This system allows for the availability of all the important documents that a user will require when he's applying for a bank loan or for many other reasons. This allows for the secure and a protected way of viewing individual documents without the hassle of the traditional methods of carrying all the documents wherever we go.

VII. ACKNOWLEDGEMENT

I wish to express my profound thanks to all who helped us directly or indirectly in making this paper. Finally we wish to thank to all our friends and well-wishers who supported us in completing this paper successfully. We are specially grateful to our guide Dr. Shinde J.N. Sir for time to time, very much needed, valuable guidance. Without the full support and cheerful encouragement of our guide, the paper would not have been completed on time.

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