Implementation on Digitalization of India using RFID Technology

#1Prof. Aparna Ajit Patil, #2Ganesh Kumar, #3Apeksha Jadhav, #4Mitesh Patil

1aparna.patil@dyptc.edu.in
2kumarganesh1997@outlook.com
3mitesh8888@gmail.com
4apekshajadhav96@outlook.com

#1234Department of Computer Engineering,
D Y Patil School of Engineering Academy, Ambi, Pune
Savitribai Phule University, Pune-41, India.

ABSTRACT

The importance of weather monitoring is existed in many aspects. The weather conditions are required to be monitored to maintain the healthy growth in crops and to ensure the safe working environment in industries, etc. The primary motivation behind taking up this project is the large utility of the wireless weather monitoring in varied areas ranging from agricultural growth and development to industrial development. The weather conditions of a field can be monitored from a distant place by farmers and won't require them to be physically present there in order to know the climatic behaviour at the location by using wireless communication. Due to technological growth, the process of reading the environmental parameters became easier compared to the past days. The sensors are the miniaturized electronic devices used to measure the physical and environmental parameters. By using the sensors for monitoring the weather conditions, the results will be accurate and the entire system will be faster and less power consuming.

Keywords: RFID Card, Reader, Controller, Digitalization

ARTICLE INFO

I. INTRODUCTION

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.

Problem Statement:

To defeat the problem of showing any card at particular office, by developing a system to validate the document of the particular user whose information is stored in the data base, which saves time and scale down inconvenience.

II. LITERATURE SURVEY

[1] (Chopra, Ghadge, Padwal, Punjabi, & Gurjar, 2014) explained that There can be improvements made when the image is captured using a camera, as it decreases the resolution factor of the images and thus, degrade their

quality. The project can be extended for recognition of handwritten characters as well as its application in various fields of recognition of diverse cards. Thus, the system has achieved the clarification for automatic reading of Aadhar Card with a good accuracy.

[2] (Deepu & Dr. Vijay Singh, 2012)(Knowlton & Whittemore, 2008) suggested that the government will use the information to issue identity cards the word which is generally known as AADHAR CARD. (Tiwari, 2013)described that the user logins to the account using his aadhar card number and the password provided him at the time of registration and giving vote.

[3] (Shah & Shah, 2014)(Goel & Singh, 2014) described that National Bureau of Investigation in Philippines, India's most recent Aadhaar card includes QR code implementation. Based on the all information we should consider the government consider only one card for the identity card of the person as Aadhaar card which is also helpful to provide the different government activities like to take subsidy and also take advantages of the different governments' scheme.

[4] (Kale & E, 2014) told that the growth in the electronic transaction scheme has resulted in a greater demand for accurate & fast user identification and authentication. An embedded fingerprint biometric authentication scheme for ATM banking systems is proposed in this paper. Along with AADHAARCARD authentication for more security.

[5] (Akhil Mittal, Anish Bhart, Sanjoy Sahoo, Tapan K Giri, 2011) suggested that Aadhar Card is unique for person which have person's finger print and retina scan. It can used to identify person anywhere in the country. (Velapure et al., 2015)(Velapure et al., 2015) found that the distinctiveness with registration through aadhar number and face recognition will offer very strong security for the secret information about vote.

[6] (Gupta & Dhyani, 2013)found that e- Voting model has been integrated with AADHAR CARD or Unique Identification (UID) card data base using cloud. By integrating e-Voting model with cloud infrastructure and ADHAAR CARD record, percentage of polling would raise and can supply authentic electoral voting mechanism to satisfy the need of the voters.

III. FLOW DIAGRAM

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

Algorithm 1:

(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
(7) 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.

Algorithm 2:

AES Algorithm:

For encryption of data:-
START
Step 1- U=Upload (image), he input is consider as Text, is being converted to 128 bit plain text.
Step 2- R= Read (input image),
Step 3- K=Key generation (image)
    e.g= key=123456;
Step 4- E=Encrypt(image, key), encode the upcoming file
Step 5- C=Convert (image),
    If(encrypt), then file convert plain to cipher text
    Split (image1, image2);
    Stored (image)
    Else, file not encrypted
Step 6- D=Decrypt (image), decode the file
    if (decode), then file convert cipher text to plain
    Combine (image1, image2);
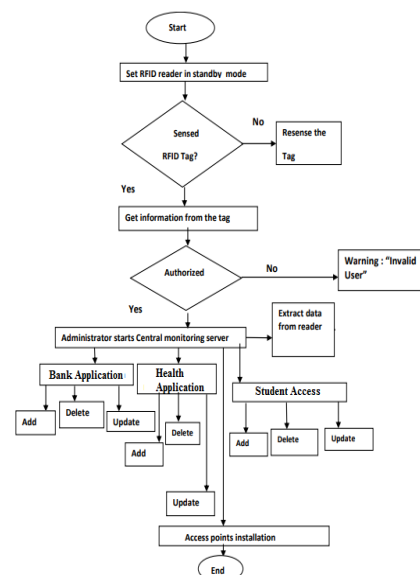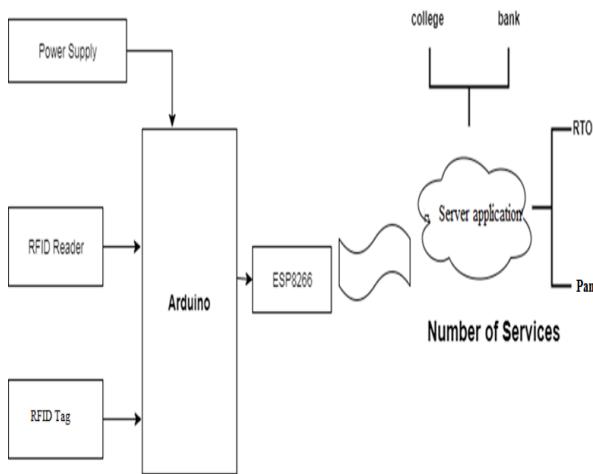   Else, file not decoded
Step 7- Download file
END

Fig. Flow Diagram

IV. SYSTEM SPECIFICATION

4.1 Controller:

A microcontroller is a small and low-cost computer built for the purpose of dealing with specific tasks, such as displaying information in a microwave LED or receiving information from a television's remote control. Microcontrollers are mainly used in products that require a degree of control to be exerted by the user.
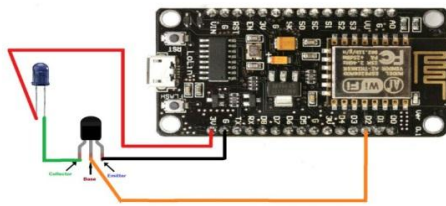

Fig. Controller (ESP8266 12E)

4.2 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 stands for Radio Frequency Identification Reader. There are many uses of RFID reader in today's world. It is used to gather information from RFID tags.

Fig. RFID Reader

4.3. 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.

First we have to set the location of place where we want to predict the rain fall. After that ultrasonic sensor will sense rainfall in that area.

Fig. RFID TAG

V. APPLICATIONS

The entire project idea is to develop safe and secure system to access the documents using OTP:

- Banks: To open an account and to apply for loans
- RTO : To apply for license and RC
- College : For admission
- Passport office: For verification purpose.

VI. ADVANTAGES

- The Digitalization provides more reliable backup of documents.
- No need of carrying documents all the time
- The Digitalization will provide less time consuming in government processes
- The system is eco friendly
- The system provides more security due to OTP access for authentication.

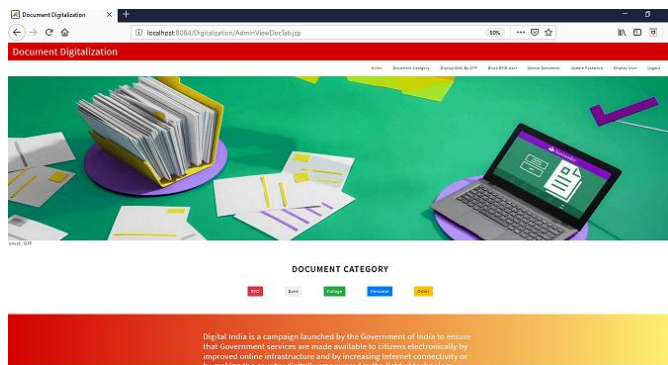### VII. RESULT

Fig. Registered User List
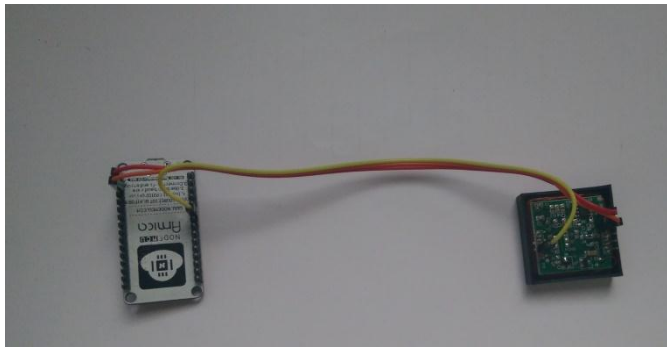
Fig. Document Categories

Fig. Hardware

VIII. CONCLUSION

This proposed system can be implemented with a single RFID card to the all government services. From this implementation this proposed system successfully to store data in the server interface with smart card with small size compare to unique number method. The requirement of this implementation is how to manage the unique id key or each identity in the server. This allows for the secure and a protected way of viewing individual documents.

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