Digitization of patient prescription at hospitals using RFID Toolkit

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Abstract- *In hospital, management system in which patient's real time information is carried via radio frequency identification (RFID) sensors tags and data is stored on cloud storage by using cryptography mechanism for securing the data. The patients at hospital will be provided with RFID card having unique identification number in which the case detail of the patient will be uploaded and store on cloud storage provided with the security of cryptography. By using RC6 algorithm, cryptographic mechanism will be gained for security purpose. Using this algorithm, we can encrypt or decrypt the data on the cloud.*

Keywords- RFID Toolkit, RFID Card, RFID scanner, RFID Reader, RC6 Algorithm.

I. INTRODUCTION

RFID known as Radio-frequency identification uses electromagnetic fields to automatically identify and track tags attached to objects. The tags contain electronically stored information. There are two types of RFID tags Active & Passive. Active tags have a local power source such as a battery and may operate at hundreds of meters from the RFID reader. Passive tags collect energy from a RFID reader's radio waves. Unlike a barcode, the RFID tag need not be within the line of sight of the reader, so it may be embedded in the tracked object. RFID is one method for Automatic Identification and Data Capture (AIDC).

RFID cards can be used as smart card in Hospitals to provide digital data. User will be provided with a RFID card at the time of registration and that card will be registered to the database with its unique ID. Once a patient get the smart card then they can access that card anywhere like Pathology Labs, Chemist etc.

II. LITERATURE REVIEW

Name	Year	Author	Description
A Mechanism to Access the Medical Information and a Modelling Approach For Medical Hazards	2016	AAmir Shahzad, Khaltar, Malrey Lee, Jae-Young Choi, Naixue Xiong (IEEE Member	Use of RFID smart cards at hospitals.
Security Algorithms for Cloud Computing	2016	Akashdeep Bhardwaja, GVB Subrahmanyamb, Vinay Avasthic, Hanumat Sastryd	Cryptography Techniques to secure data on cloud.

Figure 1. LITERATURE REVIEW

III. PROPOSED SYSTEM

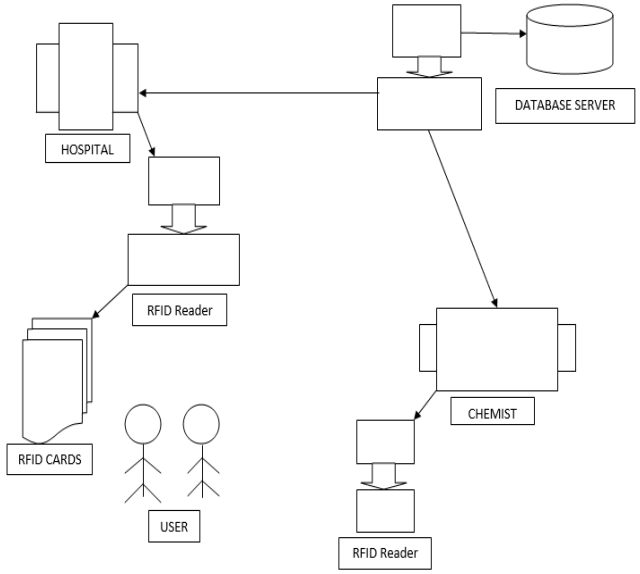

Figure 2. PROPOSED SYSTEM

a) RC6 Algorithm

RC6 is an algorithm where the block and key size as well as the number of rounds are variable. The upper limit on the key size is 2040 bits.

Like RC5, RC6 is an encryption algorithm. On the application of RC6 encryption algorithm uses 256 bit so that is kept private and this key is most importantly used in both encryption and decryption of private data.

For all variants, RC6 consisting of w/x/n operates on a specific units of four w-bit words using the following sir basic operations. The base-two logarithm of w will be denoted by log w.

- m + n integer addition modulo 2w
- m – n integer subtraction modulo 2w
- m + n bitwise exclusive-or of w-bit words
- m * n integer multiplication modulo 2w
- m <<< n rotate the w-bit word m to the left by the amount given by the least significant LG w bits of n
- m >>> n rotate the w-bit word m to the right by the amount given by the least significant LG w bits of n

In RC5, “half-round" is used to describe the style of action, and thus RC5 consist of two half-rounds. This concludes that it has became a potential cause of confusion, and thus RC6 reverts to using the term round" in the more fashionable way.

```
// '''Encryption Procedure:'''

        N = N + Q[0]
        P = P + Q[1]
        for v = 1 to x Do
        {
        y = (N*(2N + 1)) <<< LG w
        z = (P*(2P + 1)) <<< LG w
  M = ((M ⊕ y) <<< z) + Q[2v]
  O = ((O ⊕ z) <<< y) + Q[2v + 1]
 (M, N, O, P)  = (N, O, P, M)

        }
        M = M + Q[2x + 2]
        O = O + Q[2x + 3]

// '''Decryption Procedure:'''

        O = O - Q[2x + 3]
        M = M - Q[2x + 2]

        for v = x down to 1 Do
        {
(M, N, O, P) = (P, M, N, O)
z = (P*(2P + 1)) <<< LG w
y = (N*(2N + 1)) <<< LG w
O = ((O - Q[2v + 1]) >>> y) ⊕ z
M = ((M - Q[2v]) >>> z) ⊕ y
        }
        P = P - Q[1]
        N = N - Q[0]
```

b) Hardware

A liquid-crystal display (LCD) is a flat-panel display or other electronically modulated optical device that uses the light-modulating properties of liquid crystals. Radio-frequency identification (RFID) uses electromagnetic fields to automatically identify and track tags attached to objects.RFID scanner is a scanner used in smaller desktop-based operations and document authentication for scanning purpose. The 16F877A is one of the most popular PIC microcontrollers, it comes in a 40-pin DIP pinout, and it has many internal peripherals. RS-232 is a standard for serial communication transmission of data. It formally defines the signals connecting between a DTE (data terminal equipment) such as a computer terminal. Microsoft Windows is a metafamily of graphical operating systems developed, marketed, and sold by Microsoft.

IV. CONCLUSION

By using this RFID tool kit we will be able store the patient prescription in database by converting it into digital prescription also it will be accessible by the user from any part of the country And This is very Helpful For Patient to Carry Only RFID Card instead of bunch of files.

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