**RFID and GSM based Smart Recharge Any Time (RAT)**

**This is a new concept for recharging (currency) to mobile phone when we not get currency when there is emergency to call in night time mobile balance is totally zero when all shops are closed if have money then also you not recharging currency that time. This is new concept is very useful. By yourself you can recharge your currency to your phone. For example when you are at out of station from there also u can recharge currency this machine is very use full in like hospital, bus stop, railway stations etc.**

**The operation of this kit is as follows.**

1. **User needs to enter mobile number to be recharged using keypad.**
2. **It will ask for two options (RFID based recharge OR Cash deposit based)**
   1. **For RFID card option enter amount to be recharged.**
   2. **System sends OTP to above phone number.**
   3. **This OTP should be entered using Keypad.**
   4. **This completes the recharge by RFID Card.**
3. **For Cash deposit option it will ask to enter amount.**
   1. **Now it will operate the mechanism for cash handling.**
   2. **User has to insert cash into currency sensor (IR sensor) for this purpose.**
   3. **Now user gets a OTP. User needs enter OTP using keypad.**
   4. **This ends the cash recharge process.**

**The main objectives of this project are:**

1. Automatic alerting through SMS using GSM modem.
2. Usage of mobile technology.
3. Providing security through OTP.
4. Displaying recharging information on mobile.

**The project provides the following learning’s:**

1. GSM technology.
2. RFID based Smart card technology.
3. Embedded C programming.
4. PCB designing.
5. Conversion of AC supply to DC supply.
6. Serial communication protocols.

**The main building blocks of the project are:**

1. Regulated Power Supply.
2. Microcontroller.
3. GSM modem.
4. RFID reader.
5. LCD display with driver.
6. Crystal oscillator.
7. LED indicators.
8. Reset.

**Software’s used**

1. PIC-C compiler for Embedded C programming.
2. PIC kit 2 programmer for dumping code into Micro controller.
3. Express SCH for Circuit design.

**BLOCK DIAGRAM OF RAT**

**RF ID READER**

**CASH DEPOSIT**

**SEQUENCE UNIT FOR CASH DEPOSIT MECHANISM**

**IR UNIT**

**LCD DISPLAY UNIT**

**KEY PAID**

**RELAY DRIVER**

**RELAY**

**MICROCONTROLLER**

**RPS UNIT**

**G.S.M MODEM**

**WEL COME**

**1**

**2**

**3**

**4**

**5**

**6**

**7**

**8**

**9**

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