

# Secured Coin Based Cell Phone Charger with RFID

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**Abstract:--** In this project, a coin based secured cell phone charger with RFID is designed for public people use. Cell phone charger is also provided with RFID for mobile security. Many times the mobile battery becomes low down or lifeless in the middle of the talk. When right to use to standard phone charger and availability of grid power supply is not convenient, in such cases this coin based secured cell phone charger with RFID is very much useful. The coin based secured cell phone charger works in accordance with programming written in the "PIC C". When a coin is inserted, the microcontroller will detect the input. The controller reads the program written in 'c'. The tray placed to facilitate the charging of the mobile is opened which contains RFID card for mobile security and multi pin charger. Mobile is placed in the tray and the tray is closed within the time that is written in the code. Meanwhile relay switches multi pin charger. The time period depends on the coding written in the controller. With the help of multi pin charger we can charge different mobiles. And by providing two or more trays it is possible to charge more than one mobile at a time. After the time of charging is completed the customer can punch RFID card to the RFID reader and can withdraw the mobile from the tray.

**Key Words:--** coin, mobile, RFID

## I.INTRODUCTION

Now-a-days almost everyone use cell phone. It has become as an essential means of communication in urban and as well as rural areas. Most of the times cell phone battery becomes low or dead at inopportune times when standard charger is not accessible. As we know that, in most of the budding nations the electric power supply is not accessible for many hours. These days mobile phones are the vital communication gadget. The coin- based mobile battery charger can solve this problem. In cases where there is unpredictable electric power supply and solar energy is available, this secured mobile phone charger is very useful.

For charging the phone, the user needs to insert the coin and connect the phone to one of the charger pins for charging battery for a specific period of time. Here coin identifying technique is employed to identify the coin. Whenever the coin is perceived, the two leads sense the 5rs (only 5rs coin can be inserted) coin, if the coin is small or plastic or other object, it will be rejected and then the signal is passed to microcontroller. The microcontroller used here is PIC18F4520. When the coin is identified, the

microcontroller excites the signal and pass the signal to the circuit.

The multi pin charger is powered through grid power supply or solar panel. Solar chargers transforms light energy into DC current that can be used for charging the batteries.

For the purpose of security of cell phone, RFID card and RFID reader is used. The tray provided for placing cell phone resembles like locker system.

The locker system used is CD/DVD drives, when the coin is detected the signal is passed to the microcontroller to open the tray. The user has to place mobile for charging and collect the RFID card that is present in the tray. When the charging time completes, then the RFID card is inserted into the slot by the user, the card that is authenticated collected by the user when the tray is opened. After a fixed period of time the charging completes and tray can be only opened by the user with an RFID card.

### *Problem definition*

After analyzing some proposed systems similar to coin based secured cell phone charger, it was observed that there was no provision for

the user to keep his mobile safely in the system. The user needs to hold the mobile until the charging duration completes.

### OBJECTIVE

The main objective of coin based secured cell phone charger with rfid using grid power or solar power is principally for rural areas where the electric power supply is not accessible for many hours and to provide security for the cell phone kept for charging

### III.LITRATURE SURVEY

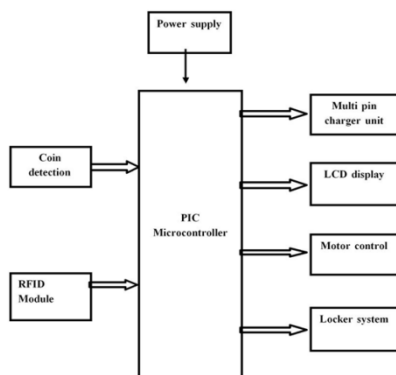
#### 1.COIN BASED CELL PHONE CHARGER

R.Priyanka, G.Guna,Dr.Sujatha, S.Banu Prathap, EIE Department, Adhiyamaan college of engineering, India , IJERT Vol. 2 Issue 3, March – 2013.

2.COIN BASED MOBILE CHARGER USING SOLAR TRACKING SYSTEM A.Sai Suneel, K.Nalini , S. B. Sridevipartment of ECE, SE&T, SPMVV, Tirupati, India. IJARECE Volume 2, Issue 9, September 2013.

In this work controlling of solar panel and optimization of power is done. Here the solar panel will rotate with respect

### IV.BLOCK DIAGRAM



**Figure (a) : Block diagram of coin based secured cell phone charger with RFID**

The insertion of coin in the slot is the initial stage. The charger will start charging battery of mobile phone which is plugged to charger, after coin is put into the mechanical slot. Particular coin has to be inserted in the slot. If any other coin is inserted, it will not be detected. If the right coin is placed inside the slot, then a signal is passed to the controller. This will authorise the start of charging of the mobile phone battery.

Coin based secured cell phone charger is powered through grid power supply or solar power. The power supply section should deliver unvarying supply for efficient working. The relay is used for activating mobile terminals upon coin insertion.

The liquid crystal display shows all the required information to the person using it. When the user connects mobile phone battery to charger pin, it shows "Insert Coin". While charging it shows "Charging" and when charging time completes it displays "Charge completed".

For the purpose of security of cell phone RFID card and RFID reader is used. The tray provided for placing cell phone resembles like locker system. The locker system used is CD/DVD drives, when the coin is detected the signal is passed to the microcontroller to activate the RFID reader to authenticate the user , then the RFID card is inserted into the socket by the user , the card that is authenticated collected by the user when the tray is opened , then the mobile is placed in the tray for charging. After a fixed period of time the charging completes and tray can be only opened by the user with an RFID card.

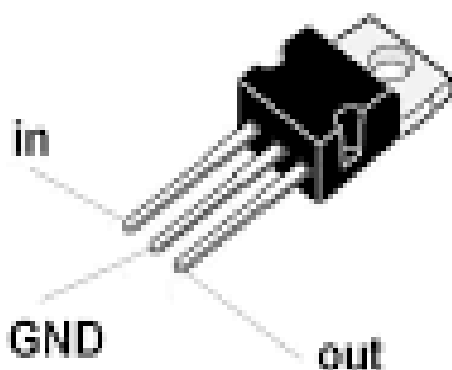
### HARDWARE COMPONENTS

#### 7805 IC

As per the power requirement of the hardware of the coin based secured cell phone charger

with RFID system, supply of +5V with respect to GND is got by using voltage regulator 7805 IC. 7805 IC gives regulated output of 5V.

This IC do not require supplementary components to provide a constant, regulated output. Intended input voltage is given to input terminal and IC provides 1 or 1.5 amperes of current. The IC have some internal safety against a circuit which may draw more current. In addition to that, the IC have safety in case of overheating and short-circuits.



**Figure ; Pin diagram of 7805 IC**

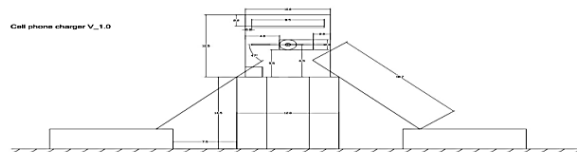
The IC have 3 terminal pins, those are as shown in above figure. Positive varying voltage is fed to the input pin. Gnd pin is grounded. At the output pin, 5V regulated output is taken out.

#### **MICROCONTROLLER :**

PIC 18F4520 IC is used in this project. PIC stands for Peripheral Interface Controller. PIC microcontroller is the IC which is developed to control peripheral devices

#### **CONCEPT OPERATION AND RESULT DISCUSSION**

##### **COIN DETECTING MECHANISM :**



**Figure (a) : Design of coin detecting mechanism**

Coin detecting mechanism is used to identify the coin. Whenever user puts the coin, the two leads sense the 5rs coin, it checks the diameter of the coin and then the signal is given to microcontroller. If the coin is small or plastic or other object, it will not sense.

#### **LOCKER SYSTEM :**

The tray provided for placing cell phone resembles like locker system. The locker system used is CD/DVD drive, when the coin is detected the signal is passed to the microcontroller to open the tray. The user has to place mobile for charging and collect the RFID card that is present in the tray. When the charging time completes, then the RFID card is inserted into the slot by the user, the card that is authenticated collected by the user when the tray is opened. After a fixed period of time, the charging completes and tray can be opened only by the user with an RFID card.

#### **RESULT DISCUSSION**

The coin based secured cell phone charger with RFID is designed for charging mobile batteries is useful for public in need. And by incorporating solar energy in this system and installing in rural areas where there is inconvenient grid power supply, this system will be very useful. Along with charging this system

provides security for cell phone kept for charging



**Figure 3.1 Experimental setup of proposed model**

After analyzing some proposed systems similar to coin based secured cell phone charger, it was observed that there was no provision for the user to keep his mobile safely in the system. The user needs to hold the mobile until the charging duration completes.

Therefore in this proposed system RFID technique has been incorporated to provide security for the cell phone kept for charging in the system.

### CONCLUSION

In this proposed system, an attempt has been made to implement coin based secured cell phone charger with RFID. The mobile phones have become a vital requirement in urban as well as rural areas. Present scenario, almost everybody have mobile phones. But one cannot carry mobile charger with them all the time. This charger can be installed at different places for the convenience of mobile phone users. Along with that security of mobile can be assured

### ADVANTAGES

The advantages of coin based secured cell phone charger are-

- Helpful in rural areas where grid power supply is problematic
- It can be promptly and effortlessly installed
- It is compact and lightweight product
- Simple and user pleasant
- Reduced man power
- Less power consumption
- Less pricey
- Provides authentication

### DISADVANTAGES

The disadvantages are –

- It accepts particular coin
- The cell phone owner needs to keep the rfid card safely

### APPLICATION

Coin based secured cell phone charger can be installed at business premises or public utilities like–, Shopping malls, Theatres, Hospitals, Railway stations, Hotels, Rural areas etc

### SCOPE OF FUTURE WORK

With some modification of this system we can use the same system for safe keeping of luggage in shopping malls instead of allotting security personnel to guard the luggage. In colleges this system can be used for keeping mobile phones of students during examinations and also some industrial applications.

### REFERENCES

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[2] COIN BASED MOBILE CHARGER  
USING SOLAR TRACKING SYSTEM

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