Smart Power System RFID based Mobile Charger

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Abstract— Now a day's mobile is playing very important role in our day to day life. But it need to be charged. So the idea of smart power system RFID based mobile charger helps us in the emergency posture by the way of charging our mobile. Due to continuous work load we face low battery problems and at time emergency we cannot find any solution. To deal with this we found solution for laptop and mobile charging by suddenly plugging charger of mobile after scanning RFID. This system uses RFID cards to detect the particular user and allows him to use the power for some specific intervals of time. In this way every user is only allowed a certain specific duration to use the power port and hence no user can monopolise over the power port. It will take less time to charge compare to other charger.

Key words: Smart Power System RFID, Mobile Charger

I. INTRODUCTION

This smart power system RFID based mobile charging system charges the mobile for particular amount of time on scanning RFID

This system is used by shop owners, public places like railway station, bus stop to provide mobile charging facility.

Card Radio Frequency Identification (RFID) establishes the identity of subjects in the physical world using uniquely numbered electronic tags. RFID is an electronic technology whereby digital data encoded in an RFID tag is retrieved utilizing a reader. In contrast to bar code technology, RFID systems do not require line-of-sight access to the tag in order to retrieve the tag's data.

So here passive RFID cards are used which store a 12 bit code. Every card has a unique 12 bit code and hence it is assigned to each user separately.

- According to the unique code of the user, each and every user would be allotted a specific time period to use the power socket.
- After the specified time period is over the power supply to the socket is cut off.

II. OBJECTIVE

- It's simple and quick mobile charger.
- Its prepaid mobile charger
- Charging at emergency situation

III. LITERATURE SURVEY

- "COIN BASED MOBILE CHARGER" is designed and made with the hope that it is very much economical and helpful in many public places. It is also more beneficial to the people to charge their mobile which needs to be charge during urgency period.
- Secured coin based cell phone charger with RFID this system an attempt has been made to implement the coin based cell phone charger with RFID.

IV. METHODOLOGY

This system consist of following components:

- LCD Display
- RFID Reader
- Microcontroller 8051
- Relay
- Regulator

V. BLOCK DIAGRAM

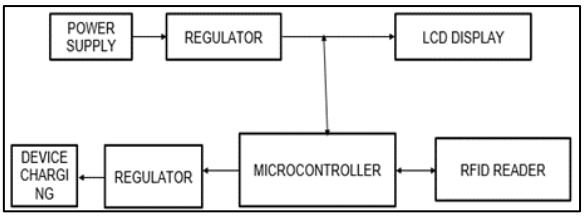

Fig. 1: Block Diagram

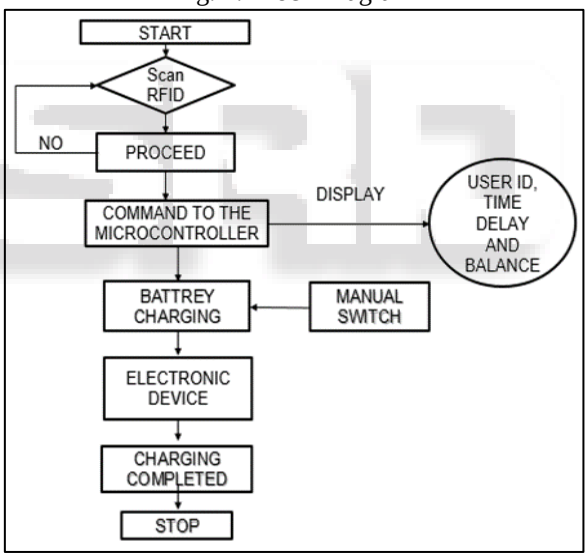

Fig. 2: Flow Chart

A. *Microcontroller*

- Small computer on a single integrated circuit containing a CPU, memory, Timer and It is programmable input/output ports.
- Microcontroller available with different word length such as 8bit, 16bit and 32 bits microcontroller
- Microcontroller can contain a varying number of I/O pins. These pins can configured to either an input or an output state.

A microcontroller is a small computer (SoC) on a single integrated circuit containing a processor core, memory, and programmable input/output peripherals. Program memory in the form of Ferroelectric RAM, NOR flash or OTP ROM is also often included on chip, as well as a typically small amount of RAM. Microcontrollers are designed for

embedded applications, in contrast to the microprocessors used in personal computers or other general purpose computers or other general purpose applications consisting of various discrete chips.

In this microcontroller used to read the information from the RFID reader and display it on LCD display.

1) RFID Reader

Card Radio Frequency Identification (RFID) establishes the identity of subjects in the physical world using uniquely numbered electronic tags. RFID is an electronic technology whereby digital data encoded in an RFID tag is retrieved utilizing a reader. In contrast to bar code technology, RFID systems do not require line-of-sight access to the tag in order to retrieve the tag's data.

Fig. 3: RFID Card Inserting Setup

B. Operating Principles

Firstly the Rfid reader will be initialized and would be in the reading mode and hence a message would be displayed on the screen to asking the user to please swipe his/her particular rfid card. As soon as a user swipes his/her card across the rfid reader, the rfid reader reads the card and transmits the 12 bit unique code of the particular card to the microcontroller and then the microcontroller detects that particular user and displays his/her name on lcd by comparing his card's no. with the database inside of it. Then next thing done is recognizing how much time the user needs to charge his/her phone. When the RFID reader reads the card its will charge the mobile for particular amount of time. Then according to the time the microcontroller closes the relay.

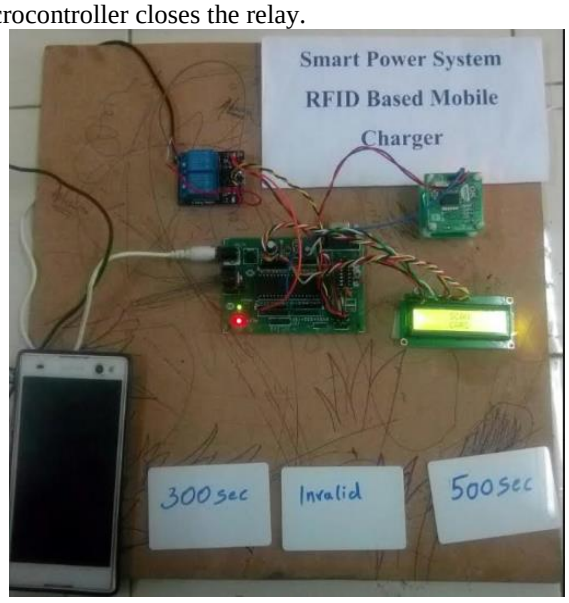

Fig. 4: Circuit

C. RELAY

Relays are switches that open and close circuits electromechanically or electronically. Relays control one electrical circuit by opening and closing contacts in another circuit. As relay diagrams show, when a relay contact is normally open (NO), there is an open contact when the relay is not energized. When a relay contact is Normally Closed (NC), there is a closed contact when the relay is not energized. In either case, applying electrical current to the contacts will change their state. Relays are generally used to switch smaller currents in a control circuit and do not usually control power consuming devices except for small motors and Solenoids that draw low amps. Nonetheless, relays can "control" larger voltages and amperes by having an amplifying effect because a small voltage applied to a relays coil can result in a large voltage being switched by the contacts.

In this relay will be ON when the RFID reader reads the RFID card. It will be on for particular time. If in between RFID reader reads the card again the relay will OFF.

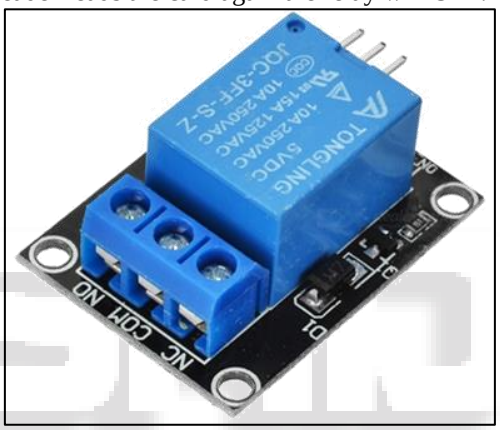

Fig. 5: Relay

D. Advantages

- Emergency cell phone charging
- Prepaid charger
- Smart power system
- Less expensive
- More efficient

E. APPLICATION

- Industrial applications.
- Smart power management system.
- Used at rural area

VI. SCOPE FOR FUTURE WORK

This idea can be used for many purposes instead for charging the mobile. It used for buying foods in the hotels, snacks in the stores, toys in the stationery by scanning the require amount to that particular product. The tickets buying in the trains, buses in the fast moving society by this idea the reduction of queue in the public places. And also we can use solar as power source for this system.

VII. CONCLUSION

To present this paper is to bring aware of the RFID based mobile charger to the public places. The necessity of mobile

phone communication is vast increased in this technology life. So usage time of mobiles is also increased without decreasing the battery charge the RFID based mobile charge is used at the time of unavailability of charger with us.

REFERENCES

[1] Coin Based Cell Phone Charger S.Banu Prathap, R.Priyanka, G.Guna, Dr.Sujatha, EIE Department, Adhiyamaan college of engineering, India, IJERT Vol. 2 Issue 3, March – 2013.
[2] Coin Based Mobile Charger Using Solar Tracking System S. B. Sridevi, A.Sai Suneel, K.Nalini, Department of ECE, SE&T, SPMVV, Tirupati, India. IJARECE Volume 2, Issue 9, September 2013.
[3] S.B.Shridevi, A.Sai.Suneel, K.Nalini "Coin based mobile charger using Solar tracking system", IJAREC, pp 741 745, Sept. 2013.
[4] International Journal of Advanced Research in Computer Engineering & Technology (IJARCET) Volume 4 Issue 3, March 2015 ISSN: Coin Based Mobile Charger Using Solar Panel.

