RFID BASED CHARGING STATION

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Abstract

As we observe that charging a phone is big issues in travelling .to overcome this issuesthere are power banks , but everyone can't afford it. Many times the mobile battery becomes low down or lifeless in the middle of the talk. There is another solution is having charging ports in bus stations , railway stations .The drawback is their might be power fluctuations and loose connections. So, considering all these issues we decided to make project on provide charging USB sockets by paying.We are using RFID cards which should be recharged before using. The reader modulereads the RFID card, if the card has enough balance the transaction of amount will takes place and the remaining balance is shown on the display and then the power is supplied to the charging port through relay.If the card doesn't have sufficient balance, it displays invalid card on the display bar.When right to use to standard phone charger and availability of grid power supply isnot convenient, in such cases this RFID based secured cell phone charger is very much useful By this project we can easily charge our gadgets by paying reasonal amount ,no damage to our gadgets , in safe & secure manner,with fast payment through rfid card.

Keywords: RFID, electric car, identification, charging station.

1. 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 rfid-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 scan the rfid cards and connect the phone to one of the charger pins for charging

battery for a specific period of time. Here the rfidmodule reads the card if the card have enough balance the amount will be debited from the card and the remaining balance is displayed on the LED. If the card doesn't have enough balance the microcontroller displays invalid card on LED.The microcontroller used here is Aurdino Uno. When a module reads a card with enough balance, the microcontroller uses relay to supply current to the circuit. The multi pin charger is powered through grid power. The relays are used to supply power to the different sockets at a time after the transaction has been completed. LED display is used to show the status of the charging and the amount that is deducted and also it shows the remaining balance in our rfid card.

Objectives

The project seeks to follow the following steps:

To design a charging station in which we use RFID cards for payment.

Prove that the following in reality expands the proficiency impressively.

Very useful in public places while travelling since we don't find a socket frequently to charge mobile.

Scope

It also supports fast charging. So it is very useful to modern phones which are compatible with fast charging.

It also charges very low price for charging. The cost is not fixed. It varies according to the time we charge our phone.

Very useful when we are travelling or when we are in public places.

The power supply starts after the payment has been completed.

2. RELATED WORK

There are many existing solutions for the basic need of charging our phone. To work on a simple process of charging is easy but there are few solutions which are very forward to our solution but in the existing solutions there are some disadvantages .Although we do have the disadvantages but these can be rectified and clarified. we are using the RFID cards and reader and LED display ,microcontroller. The process goes on RFID Smart Cards store information on a chip embedded in the smart card. The chip contains an embedded secure microprocessor or equivalent intelligence and internal memory. The reader scans the memory and goes to the micro controller which we are using as to give permission to start relay.We are using relays to start charging or to give power supply to the socket and there are three sockets which is only can be accessed by one user at a time only

and the other sockets are doesn't have power supply and there is safe and secure of keeping the gadgets.Nowadays mobile phone has become mandatory in our day to day life. Charging the mobile phone while we are travelling will become difficult if we don't carry power banks.So our RFID based mobile charging station is very useful for an effficcient charging in public places.By scanning the RFID cards the amount will be debited and the relay allows the current to flow in to the circuit.

3. IMPLEMENTATION

In this RFID Based power station the technology used is mainly based on RFID cards. Here the RFID cards are recharged before we use them. The RFID card should be scanned at the RFID Reader Module .The RFID Reader Module scans the RFID card and sends the information to aurdinouno. The aurdino checks whether the card has enough balance or not. If the card has enough balance then the transaction will be processed. The amount decides on the time we choose for charging. After transaction it also displays the remaining balance in the card . After the transaction has processed the aurdino allows the power supply in to the socket through relay module.If the aurdinodoesnot have enough balance the

aurdino displays as invalid card on the LED Display. Here we use some specified RFID cards to open power supply into different sockets. i.e. A specified socket is unlocked by using only a specified RFID card. Here the sockets are compatible with fast charging chargers like the chargers with 30 watt and 60 watt input power supply.This is invented to use them in public places like bus stops, railway stations etc… As we don't find asocket usually while we travelling.

Block diagram:
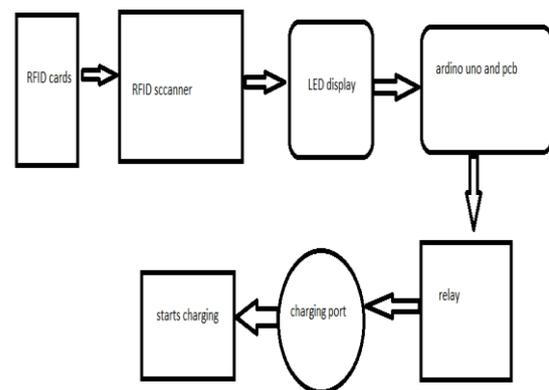
The purpose of this RFID Based Charging Station is, now-a-days people are travelling usually

on purpose of job or to explore the world or to explore the nature etc. Mobile has became a part of our day to day life. While travelling from one place to another place we always carry our mobile with us.During long journeys our phone battery will drain. While travelling we don't find sockets in bus and railway stations. If we find also they might not work properly. So our charging station is very useful in

public places to charge our mobile by paying a reasonable price using rfid cards and our charging station also supports fast charging this is very useful to modernphones.This system consists of oneaurdinouno , one RFID Reader Module, RFID cards, LED Display, buzzer, Relay Module, sockets, few jumper wires.

4. EXPERIMENT RESULT

Working Of Rfid Based Charging Station:

In this RFID Based Charging Station we use a aurdinouno,few jumper wires and a LED screen. We also use relay module to supply the power to the sockets and we use a RFID reader module and RFID cards in which the RFID cards are scanned by the RFID reader module to on the power supply in to the sockets through relay module.

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Prototype
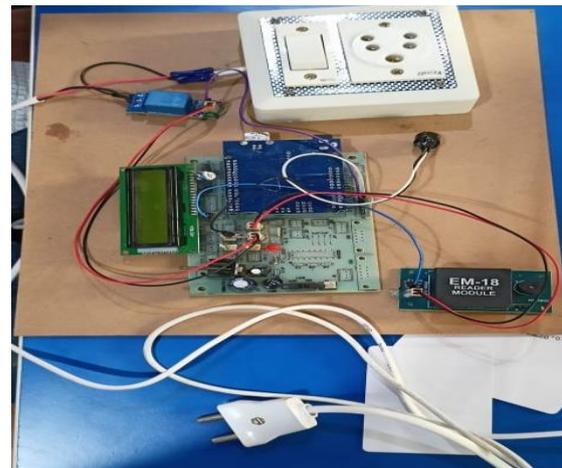
Applications:

It is used in public places: parks, malls, shops.

It is also used in railway, bus stations.

Colleges and uniersites

Where their more usage of gadgets.

Advantages

It works on all weather conditions because few are solar charging stations are available.

It has a backup battery which provides minimum charge

It consumes only 5v supply and it gives passes many devices.

It is at reasonable cost paying for charging with cards

There is no need of online transcations.

5. CONCLUSION

This project gives us a conclusion or an end to the issue of charging in public places and in stations. it can used everywhere in the public .there is an income form this project by keeping safe and secure the gadgets and it consumes less power supply at very reasonable amount just by carrying an card like debit card in our wallet.

6. REFERENCES

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