

# Coin Operated Cell Phone Power Charger

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**Abstract:** *A coin-based mobile charging system provides an alternate solution to all mobile users for charging their mobile phones during travelling or emergency where they may not have access to conventional power banks. This system can be used by shop owners, the general public and can be implemented in public places like railway stations and bus stand to provide mobile charging facilities*

**Keywords:** Adapters, Battery Charger, Mobile, Microcontroller

## I. INTRODUCTION

Now a day's smart phones become an ineluctable part of human's life. The power supply is an integral part of all electronic systems. Most of the works are done through mobile phones daily, so charging is the essential requirement to operate them. Therefore, the idea is to develop a system that will provide charging on coin insertion. The important thing is that the said system will be available at public places at any time. The user has to insert the coin into the coin acceptor and plug the suitable adapter into the mobile phone. The amount of charging will be pre-defined values, as mentioned in the microcontroller. This system is easy to install and useful for everyone using a Smartphone. The project is based on developing a coin insertion-based mobile charging system that provides an effective solution to everyone's low battery issues while travelling or during day-to-day activities. Most people use a Smartphone, which consumes tremendous battery power.

## II. LITERATURE SURVEY

### **M. S. Varadarajan, "coin operated cell phone power charger"**

The growth of mobile phone market is phenomenal in recent years and the need for charging the mobile battery is required anytime and anywhere. In many developing countries the grid power is not available for few hours to several hours on daily basis especially in semi urban and rural areas where the mobile phones are the essential communication device. While the urban population use more sophisticated mobiles with good power batteries lasting for few days, the rural population buy the preowned mobile phones that require charging frequently even two or three times a day. In the event of unpredictable grid power and availability of abundant solar power. A coin based universal mobile battery charger is designed and developed in this paper.

### **S.Banu Prathap, R. Priyanka, G. Guna, Dr. Sujatha " coin operated cell phone power charger "**

Now a days mobile phones are play's important role in the present communication world as well as day to day life. This paper describes the mobile battery charger on coin insertion. The mobile phone business is currently worth billions of dollars and supports of most number of features in every mobile phone with different operating systems. So to operate these mobile phones public charging is needed, and it should be useful to public. This is designed based on ATME1 89c51 a 40-pin micro controller that does the countdown timings for a period of 5 minutes with LCD displays showing the actual time left. During the timing period a relay output is latched and finishing timing in progress. Recommended locations.

### **Dhara G. Rangani, Nikunj V. Tahilramani "coin operated cell phone power charger"**

Presented mobile charging using a coin in which their main focus was coin detection, for which they have used a cantilever type sensor for coin detection. The cantilever-type sensor detects the weight of the 5-rupee coin and gives a

digital signal to ADC. They were using this controller to check whether the coin is original or duplicate. They have also used solar power for charging the mobile batteries and used greed power when solar power is not available.

### III. METHODOLOGY

We have proposed an efficient, cost effective and reliable system to charge mobile phones in public places. The heart of the system is the coin insertion machine and the brain are the microcontroller. We have used the Atmega 328 microcontroller and coin sensor. The Coin insertion module for the proposed system is programmed to take INR 2 and INR 5 coin. The system will not accept any other coin.

The charging time period is calculated by using Atmel 89c51 microcontroller and after that microcontroller display the remaining time period. When time period reaches to zero automatically power supply will cut by using relay circuit.

#### Atmel Atmega 328 :

The system uses microcontroller. It is our system brain. The controller checks the if any coin is inserted into the system by reading the coin insertion module. After detecting the coin inserted by the user, it calculates the amount of required for charging and then turns on the mobile charging unit via a relay module for the exact time for which the user inserted the coins.

#### Coin Sensor:

The coin Insertion module is the heart of the proposed system. The user interacts with this machine to input the desired number of coins. It is a multi-coin acceptor that can accept up to 6 kinds of different coins simultaneously. To identify coins it is based on material Weight and Size. We have programmed it to take only two coins; INR 5 and INR 10 are acceptable. If the user inputs any other coin or wants to input a fake coin, it will be returned to him/her. It works on 12V DC and requires 65mA for optimal working.

#### Block diagram:

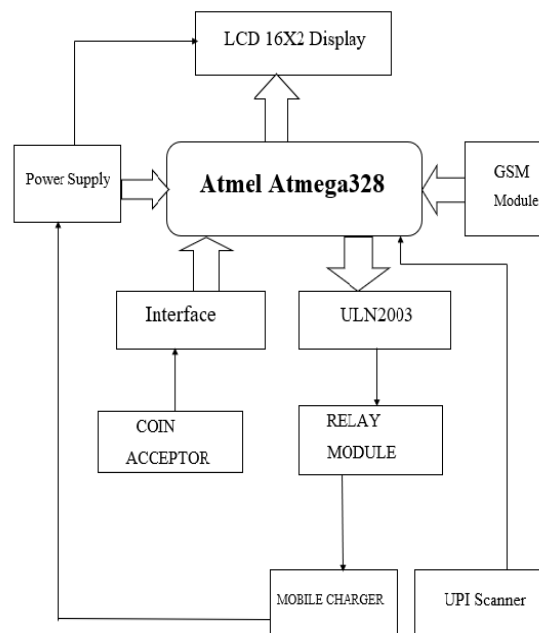


Figure 1: Block diagram of proposed work

#### LCD Display

The LCD interacts with the user visually. It displays a welcome message and guides the user on how to operate the system properly. The system uses a 16x2 liquid crystal display for interacting with the user.

### Relay Module

The Relay Module is used to control the charging of the user's smartphone when connected to the system. Hence, it is necessary to include it in hardware requirements. The relay is controlled and powered by the microcontroller.

### Mobile Charger

This unit is the most important one. It charges the users Smartphone. It draws power from the mainline (230V AC) and converts it to 5V DC. It has an inbuilt transformer, rectifier and filter. A relay is used to switch ON the charging when coins are inserted and switches OFF when the allotted time for charging has passed.

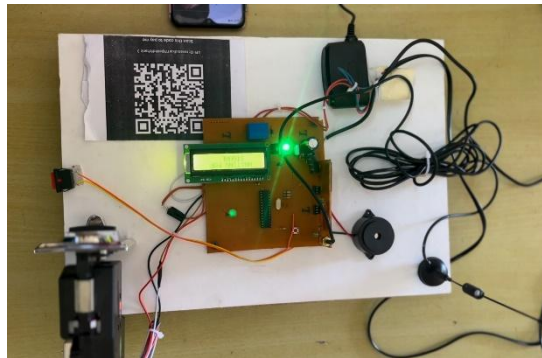
### GSM Module

GSM is an open and digital cellular technology used for transmitting mobile voice and data services. GSM technology was developed as a digital system using the time division multiple access (TDMA) technique for communication purposes. GSM module sends a message to the mobile phone to accept Instruction.

### UPI Scanner

UPI QR (Scan and Pay) is a digital payment acceptance channel displayed at the merchant establishment to facilitate receipt of payment by Scanning the QR Code from any UPI linked mobile app.

## IV. RESULT



## V. CONCLUSION

A method of charging mobile batteries of particular manufacture has been designed and developed whenever required. This project is beneficial in today's life. Nowadays, communication is vital, so every person has a smartphone, but they do not carry a charger with them every time. When they are going for extended travel, they might forget to carry a phone charger. This project is used to help the people by building a coin-based charger. Also, nowadays, this kind of project is beneficial because of the extensive internet and smartphones usage. Conventional grid power is used for mobile charging; hence the project is low cost. In the literature survey, we have cited that many other peoples have provided an approach to this project, but they are powering their system with solar power, which makes the complete system less compatible, more maintenance is needed, power issue during night, more costly overall and not feasible over a long run. Our system uses the main supply, which can be produced from a renewable power plant, instead of using the solar panel and making it complicated and less productive over a long-term period.

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