

# Coin-Based Mobile Charger

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**Abstract** - Cell phones have become quite popular in recent years in communication and everyday life. Therefore, charging a cell phone has become a major undertaking. In this project, we are trying to design a portable battery charger for inserting a coin. As cell phone use increases daily it requires constant battery life, so too use them it is necessary to charge in public which can be useful for mobile users. This program will charge the phone at a certain time.

Once a valid coin is detected, it will begin to power the cell phone with a single adapter. We will use a global charging adapter that can be used on all mobile phones. The mentioned system can be used in public places such as train stations, bus stops, hospitals, supermarkets, etc. for help.

**Key Words:** Cell Phone, portable battery, light, Charger, Adapter.

## 1. INTRODUCTION

The goal of this mission is to offer a solution for charging of cell in public places. the individual that desires to rate his/her mobile has to insert a coin and join his/her mobile with the charger. The cell might be charged a particular quantity of time depending on the number of coins inserted via him/her. As quickly as Coin Sensor detects the coin it sends a pulse to the Microcontroller. The Microcontroller activates the relay (Electromechanical transfer) to offer 230V, 50Hz signal to the charging socket and the user can rate his/her cellular cellphone from the socket. The lcd (sixteen×2) is used to show the time duration for which the consumer can fee his/her cell telephone. As the entire time gets lapsed, the charging might be stopped. it may be in addition defined with the assist of following block diagram.

## 2. LITERATURE REVIEW

The primary goal of this research is to provide charger this is decided form solar strength and cutting-edge supply. The system works consistent with coding written in 89c51 microcontroller IC. The machine uses the maximum solar strength for charging cellular battery. The microcontroller activates the driver for specific time as in line with coin inserted and it includes transistors that act as a switch to show ON and off MOSFET.

The MOSFET output is connected to the charging circuit that will provide charging. The IR (infrared) transmitter and IR receiver is used to transmit and receive the IR signal in the receiver side

Among the IR transmitter and receiver, a coin is to be inserted to exchange the polarity of pulse in input. The relay will directly to prompt the 230v charger, we will use charger to rate for our cell telephone. whilst the coin is detected it sends a pulse to the 555 timer which activate the relay (Electromechanical transfer) will start providing charging to the socket to rate the mobile telephone. [2] This research is presenting precise carrier to the agricultural public where the grid electricity is not to be had Partial/complete daylight. The salient characteristic of this paper

Is that it draws electricity from grid energy. In case of non-availability of grid electricity, it'll use the solar energy during the day time for charging the internal battery of the controller. consumer absolutely has to plug the mobile phone into one of the adapter and inset the coin; the smartphone will then accept a micro-pulse for charging. The charging potential of cell will be pre-described values.

## 3. PROPOSED WORK

The system uses a coin acceptor gadget so that it will locate for a valid coin. The coin acceptor is hooked up to Arduino board and it then related to the lcd display. If a legitimate coin discovered it alerts the Arduino and the Arduino will send signal to LDC to display the quantity of time to be charged. The relay will manage the electricity supply to charger, after finishing touch of time period it's going to forestall imparting electricity. The SMPS (transfer Mode energy deliver) in the charger used for handling power conversion. The liquid crystal display display screen will show how lots time left for the charging if the user desires to growth the length of charging he needs to feature another coin then the microcontroller adds the time in presently ultimate time.

### MODULES:

Input stage-To recognize and accept the valid coins

- Controller-To control the voltage supplied
- Power-To supply the power based on the requirements
- Output stage-To display the output information on screen

## 4. SYSTEM ARCHITECTURE

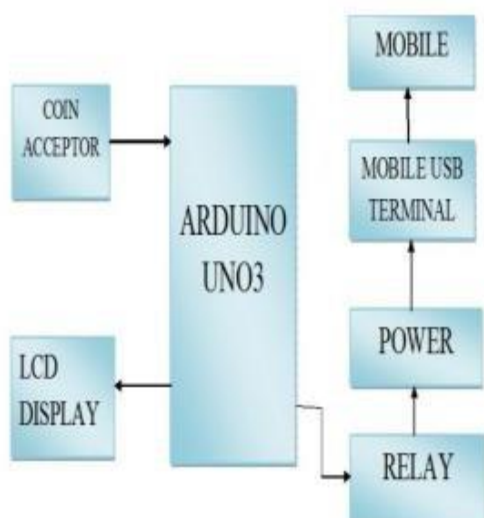


Fig -1: Figure

## 5. METHODOLOGY

The 3 pins of the coin sensor is attached with the Arduino board. One pin is connected with the pin 2 in Arduino and the opposite two pins are connected with the superb and bad terminal of the battery. as soon as the coin is inserted into coin sensor, it validates the coin and sends sign to the Arduino. The Arduino will send the signal to liquid crystal display 16x2 display. The lcd presentations the quantity of time to be charged. Then the battery will Charged the cellular cellphone based at the quantity of legitimate cash. If the coin is invalid then the liquid crystal display displays a message as "INSERT THE COIN". the subsequent flowchart describes how the gadget works.

The person that desires to fee his/her cellular has to insert a coin and connect his/her cell with the charger. mobile will be charged at a particular amount of time relying on the wide variety of cash inserted with the aid of the character. As soon because the Coin Sensor detects the coin, it sends a pulse to the 555 timer

## 6. IMPLEMENTATION

The three pins of the coin sensor is attached with the arduino board. One pin is hooked up with the pin 2 in arduino and the other two pins are related with the fine and negative terminal of the battery. as soon as the coin is inserted into coin sensor, it validates the coin and sends sign to the arduino. The arduino will send the signal to liquid crystal display 16x2 display. The lcd displays the quantity of time to be charged. Then the battery will charged the cellular telephone primarily based on the wide variety of valid coins. If the coin is invalid then the liquid crystal display presentations a message as "INSERT THE COIN". the following flowchart describes how the machine works.

## 7. SYSTEM REQUIREMENT

### Input degree:

The person inserts a coin to the coin insertion slot. The sensor is hooked up to the coin insertion slot and the coin is tested based totally on the diameter of the coin inserted. to begin with the lcd display a message as "Please insert coin". If the inserted coin is legitimate, the message is displayed within the liquid crystal display and sign is sent to the arduous. If the coin is not valid, it's miles again lower back. whilst the coin is widespread, the hard and relay is activated and the battery starts offevolved getting charged by using the software of relay.

### Controller:

The machine performs consistent with the input signal from the circuit. primarily based at the diameter of the coin, the coin is either familiar or rejected. If the coin is common, it sends signal to arduino at the side of liquid crystal display interface. as soon as the arduino receives the signal from the coin insertion slot, it sends sign to the relay. The relay generates the voltage of 5v, which in flip prices the mobile smartphone thru the cellular USB terminal.

### Output and show:

The liquid crystal display related presentations the messages as and while required. to start with, when the cell charger is hooked up the liquid crystal display presentations as, "Please insert coin". while the mobile smartphone is charging, it presentations "Charging" and the duration of charging primarily based on the coin inserted.

### Strength:

This coin primarily based mobile charger attracts electricity from the arduino via relay. The voltage is regulated based totally on the sort of the cellular telephone linked for charging. the following listing describes the various mobile

Sr No	Mobile Type	Max Charging Voltage(V)	Max. Charging Current(mAh)
1	Samsung	5.7	3400
2	Sony Ericson	4.8	900
2	Nokia	4.8	1500
4	LG	5.5	2100
5	Panasonic	3.7	1200
6	HTC	5.5	1800
7	Black Berry	3.7	1300

Table 1: Charging requirement of mobile charger

## 8. CONCLUSIONS

On this undertaking, a singular approach of charging mobile batteries the usage of solar energy as well as AC strength supply with relay switching has been designed and evolved for rural and far flung areas in which the grid power isn't to be had all of the time. The mobile communicate has emerge as necessity for people staying in rural regions and far off regions. This device is useful for charging mobile batteries as these cellular battery chargers be established at various public locations for the convenience of cell customers for charging motive.

## 9.FUTURE SCOPE

In our work, we've generated the results of a create-and-layout studies geared toward providing a Coin primarily based mobile Charger the usage of Arduino, Coin Sensor and relay. This performs a important position in charging the cell telephones. The sensor has been fabricated for unique form of coin. once it become fabricated for accepting many styles of cash, then it'll be very beneficial and may be implemented in lots of region.

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