

# COIN BASED MOBILE CHARGER USING SOLAR TRACKING SYSTEM

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**Abstract** - The paper explain Coin Based Mobile Charger Using Solar Tracking System .As whole world is going towards the new phase of technology our needs becomes more sophisticated, on the other hand we need speed, quality, and effectiveness . But battery life of a smart phone will never match that of an old phones, so it is the high on everyone priorities which smart phone should buy? Sometimes battery becomes flat in the middle of conversation particularly at in convenient times when access to a standard charger isn't possible. It is true that many consumers carry around chargers with them or can find them in an Airport terminal or even a retailer, but this requires a consumer on the go to tether themselves to an outlet while waiting for the charge to fill. There are also charging cases and back-up battery products, but these too are mere band aids to the issue at hand. So to operate these mobile phones public charging is needed, and it should be useful to public. This system that is solar mobile charger gives the charging to mobile phone and solve this problem. This system is like coin based phones which was famous in beginning of 20th century. This System is designed based on ATmega16 a 40 pin micro controller that count down timing for a particular time period which was predefine with LCD display showing the processes. The relay and LDR output is latched and finishing timing in progress.

**Keywords:** Battery, Solar tracking system, LDR, ATmega16.

## 1. INTRODUCTION

In the present day scenario power has become the major need for human life. Energy is an important input in all the sectors of any countries economy. The day-to-day increasing population and decreasing conventional sources for power generation, provides a need to think on non-conventional energy resources. Here in this paper we are looking forward to conserve the solar energy that gone wasted. With the growing speed of technology advancement, smart phone have become the essential component of daily life. Smartphone is mobile phone which offers advance technologies with functionality similar as a personal computer. There are also very advanced features in smart phone such as internet, instant messenger and email etc. As whole world is going towards the new phase of technology our needs becomes more sophisticated, on the other hand we need speed, quality, and effectiveness . On the other hand these feature should be combined in a solution small enough to carry it in the pocket. But battery

life of a smart phone will never match that of an old phones, so it is the high on everyone priorities which smart phone should buy? It is true that many consumers carry around chargers with them or can find them in an Airport terminal or even a retailer, but this require a consumer on the go to tether themselves to an outlet while waiting for the charge to fill. There are also charging cases and back-up battery products, but these too are mere band aids to the issue at hand. So to operate these mobile phones public charging is needed, and it should be useful to public. This system that is coin based solar mobile charger give the charging to mobile phone. Sometimes battery becomes flat in the middle of conversation particularly at in convenient times when access to a standard charger isn't possible. The coin-based solar mobile battery chargers are designed to solve this problem. This system is like coin based phones which was famous in beginning of 20th century. Initially when we inserted the coin into coin insertion slot, it will detect that coin with the help of sensor. Then we can connect our mobile to the charging plug and charging will start. Charging is depend on the coin.

## 2. BASIC ASSUMPTIONS

The design of Coin base Solar Mobile Charger is based on following assumption:

- The charging current is up to 4.3AH@6v DC
- Provision to charge maximum five types of mobiles
- Alternate power supply is available in this system.

## 3. FLOWCHART OF PROPOSED SYSTEM

- Start the system by inserting the coin.
- Coin will be detected by using coin sensor(IR sensor).
- If the coin is detected then charging will start, otherwise the coin will be refund.
- Connect the charger to mobile.
- Add more coins for further charging.

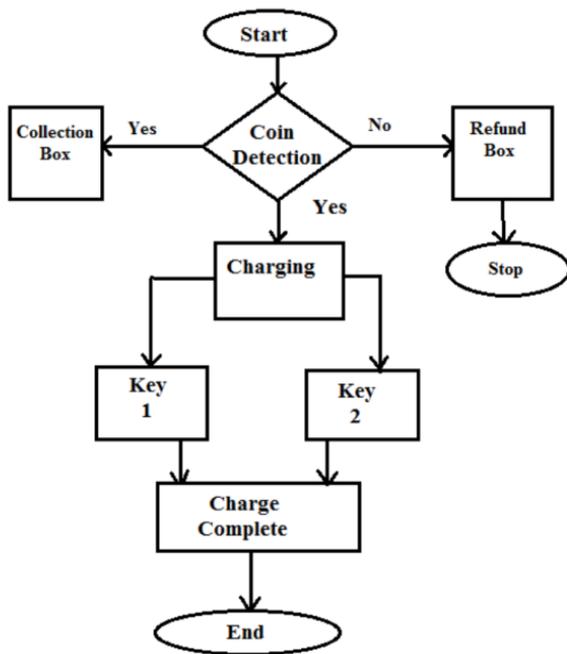


Fig. Flow Chart of Coin Based Mobile Charger.

#### 4. SOLAR ENERGY

Solar energy isn't something new. People have used sun to dry and preserve things. Vedic literatures in India even state the use of flying machines which were powered using the sun. Come 21st century, we have come a long way in developing solar cells which are the devices powering our future, converting sun's energy into electricity. Solar panels are simply solar cells lined up together in series and parallel so as get sufficient voltage and are p-n junction semiconductor devices with pure silicon wafer doped with 'n' type phosphorous on the top and 'p' type boron on the base. If the PV cell is placed in the sun, photons of light strike the electrons in the p-n junction and energize them, knocking them free of their atoms. These electrons are attracted to the positive charge in the n-type silicon and repelled by the negative charge in the p-type silicon. Connecting wires across the junction will have a current in them.

Usually the solar panel face only in one direction, because of this reason it will not get sufficient ray of sun to generate energy. In this system the maximum power is optimization is done to get maximum energy from sun. LDR is used to sense the light & get maximum power optimization. The servo motor is connected through the solar panel with the help of servo motor and LDR input signal the solar panel automatically maintain face of solar panel towards the sun.

#### 5. HOW SOLAR PANELS BEHAVE TO DIFFERENT INTENSITIES OF LIGHT.

CONDITIONS	OPEN CIRCUIT VOLTAGE ACROSS THE PANEL
Covered with cardboard	0.263V
Facing the desk	0.468V
Covered with Paper	2.5V
At the window(11am)	14.72V
In the lab	7.62V
At the desk	5.2V
Using a torchlight at distance 15cm	11.22V
At the terrace(2pm)	At the terrace(2pm)

#### 6. BLOCK DIAGRAM

The below fig. shows the different component used in the system as shown below:

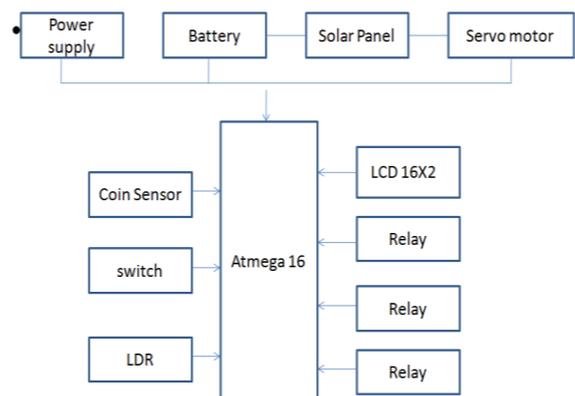


Fig. Block Diagram of System

#### 7. WORKING

Whenever a coin is inserted the system IR sensor will detect the coin and ensure correct coin insertion. If the correct coin is inserted LCD display the information to the customer for next processes and if coin is faulty it will be returned to refund box. The LCD display the selection of

mobile option for charging . There are two sources available for charging mobile phone. 1. The input power which is generated through Solar Energy. 2. The input to the system is applied from the regulated power supply of 230V from main supply is step down to 12V by using step down transformer. Microcontroller is the middle stage of the system which plays an important role in the project. Microcontroller works only when the command receives from IR sensor .LCD display shows all the process of controller on the screen and number of relays depends upon the number of connectors we used in the system. The output stage is called the charging process or completion of charge. The supply from the relay given to the mobile charger pin. By connecting the mobile phone to the mobile charger pin the number of coin insertion according to these amount the completion of charge is taken placed

## 8. ADVANTAGES

- Economical and easy to install.
- It is eco-friendly.
- Maintenance cost is low.
- Will solve some of the electricity problems of the world.
- This can be implemented on public places such as Railway Station, Airports, Hospital, Government Hospital

## 9. APPLICATIONS

- Power management system in rural region.
- Industrial Application.
- Solar System.
- Coffee Vendor Machine.

## 10. CONCLUSION

- It can be implemented at any Public place.
- Depending upon the necessity electricity generated.
- Construction and arrangement is very easy for installation.
- The stored or generated electricity could satisfy the daily requirement of electric power.

## 11. FUTURE SCOPE

- It has easy and reliable for mobile charging.
- As we know this system is depend on the solar energy so it is effective.

- Like mobile phone this system is also used for television in future.
- Also we can use solar energy for other home as well as industrial purpose.

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