

SOLAR TRACKING SYSTEM WITH IOT

Nikita Ambadkar¹, Nisha Junghare²

1(Information Technology, RTMNU/S.R.P.C.E, and Nagpur

Email: nikitaambadkar@gmail.com)

2(Information Technology, RTMNU/S.R.P.C.E, and Nagpur

Email: nishajunghare22@gmail.com)

Abstract:

The objective of this project is inserting the coin to charge your mobile phone in public places. People who are all using mobile phones in outside of home or office without charging condition, the coin based mobile phone charger is very useful to that person for using coin to charge that mobile. Also the monitoring of Solar Energy and charging as well as coining is monitored through IoT based open source mobile Apps.

Keywords—Solar Tracking, IoT, Auto cut off Charging.

I. INTRODUCTION

Power supply is an integral parts a vital roles in every electronic circuits and hence their design constitutes a major sources in every application. In order to overcomes the performing operations which results due to fluctuation in the load and discontinuity in the supply proper choice of power supply is indeed a good need in this hour.[7] The aim of this project is to supply a solutions for charging of mobile at public places.[2] The person who wants to charge the mobile has to insert a coin and connect the mobile with the charger. The mobile will be charged at a particular amount of duration depending on the number of coins inserted by that person. The coin-based versatile battery chargers are introduce to took care of this issue.[6]

II. BASIC ASSUMPTION

The design of coin based system that mobile battery charger is based on the following assumptions:

- a) Maximum solar radiant energy is used for charging the lead acid battery insides the phone battery charger to keep it charged fully all the time
- b) The charging current is up to 4.6AH @ 7vDC and this takes care of the phone manufactured by Nokia, LG,IPHONE, Blackberry, HTC and others of first and fourth generation mobiles.
- c) A single solar panel of size 735x880x40 mm, 40WP capable of supplying up to 3.0amp is used.
- d) Provision to charge maximum 9 different types of mobiles is provided.

III. PROPOSEDSYSTEMS ARCHITECTURE

1. Coin sensor and dual timer:

It consists of constant IR transmit and IR receiver Sensor whenever a coin is drop light intensity falls on IR receiver changes, resistance changes it alters the pulse width of the timer.

2. Micro controller:

It is called the heart of circuit. It accepts the input from timer this is processed and control signal is created so as to trigger the relay, manage coin count

3 LCD:

It is the output device which show text outgoing message and also count.

3.1 Output and Display

The LCD displays all the information to the user as and when required. At the point when the telephone batteries is connected,it show" coins". While charging it shows "Charging" and toward the finish of charging cycle it show "Charging finished".

4. Relay:

It is used to connect and disconnect the load from the circuit depending on received major signals

5. Coin Based Mobile Charger

The basicimportant block diagrams of the mobile batteries chargers is given in Figure

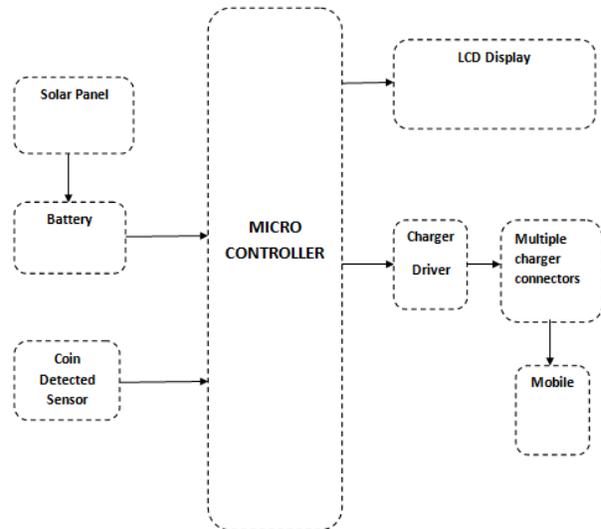


Fig 1: Block diagram for coin based mobile charger

6. Power Supply:

The input to the circuit is applied from the regulated power supply [6]. The AC input i.e., 240V from the main supply is step down by the transformers to 13V and is fed to rectifiers. The output obtained from the rectifier is a pulsating DC voltage. So keeping in mind the end goal to get an unadulterated DC voltage, the yield voltages from the rectifiers is bolstered to a channel to expel any AC segment exhibit eve subsequent to applying corrections. Presently, this voltage is provide for a voltage controller to acquire an unadulterated steady DC voltage.

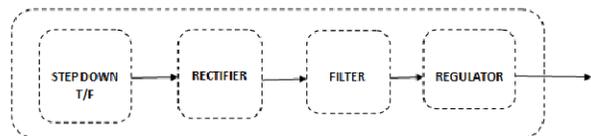


Fig 2: Power supply

7 ACTUAL VIEW:

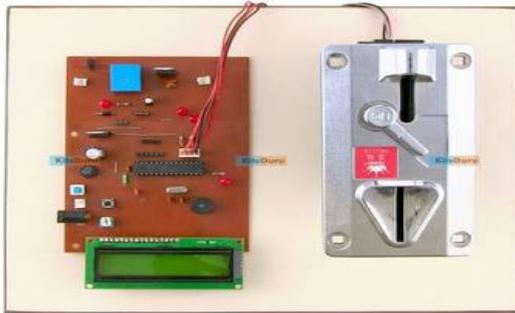


Fig 3: Actual View of Project

IV. IMPORTANT CONTENT

A. Internet of Things (IOT):-

The Internet of Things (IoT) is an arrangement of interrelated PC gadgets, mechanical and advanced things, items, creatures or individuals that are given distinctive recognizable proof and the capacity to exchange information for a system without requiring human or human-to computer interact. The issue is, individuals have restricted time, consideration and minutes all of which implies they are not great at catching information about thing in reality life. On the off chance that we had PC that ought to know everything's there was to think about thing.

Raspberry Pi :-

A The Raspberry Pi is a minimal effort, Master card estimate PC that connect to a

PC show or TV, and utilize actions a standard console and extras. It is a proficient little gadget that empowers individuals of any age to investigate processing, and to figure out how to do program in dialect like Scratch and Python. It can do all things you'd anticipates that a personal computer will do, from peruse the web and played superior quality video, to making spreadsheet, word-handling, and playing recreations.

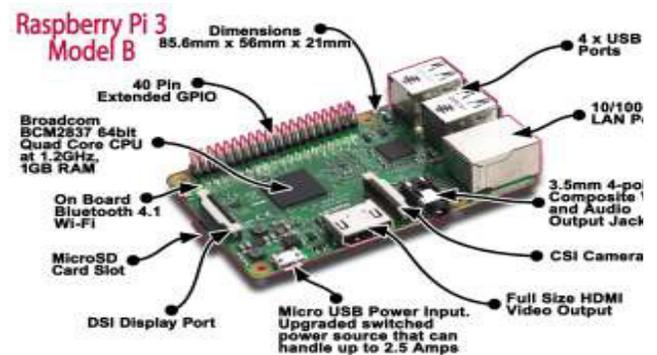


Fig 4: Raspberry Pi

c. Python On The pi :-

In Python you don't to simply tell the PC whether a variable is a number, a rundown, or a string; the translator make sense of the information writes when you unravels the content. The Python translator can be keep running in two route: as an inductive shell to execute singular order, or as a summon line program to comprehend independent content.

V. LITERATURE SURVEY

[1] **D. Pawar** says that is useful to save energy from sun and intelligent tracking solar energy. Also having **Low Coin Based Solar Mobile Charger:-**

Aparna power consumptions MATLAB is used for avoiding detect fake coin . So this system is useful from all way.

[2]**Design and Implementation of Efficient Solar Power Systems for Multi Mobile Charger:-**

D. Asha Devi & M. Suresh Babu, says that searching of maximum output by tracking the Sun and resetting itself for few day. Here, with reference to the result analysis, 41.8% of more efficiency is achieved than fixed panel system through this proposed system.

[3]**Design and Development of Microcontroller Based on Solar Charge Controller:-**

Wallies Thounaojam, V.Ebenezer&AvinashBalekundrisaysthat a low cost high performance microcontroller based solar charge controller has been used. The proposed system used solar PV module as the input and DC load as the output. The proposed system has an upgrade option to control normal UPS.

[4] Experience Replay for Mobile Charging in light of Coin by help of Solar after System:-**T. Chandrashekhar, G.Swaminaidu , Ch. BabuRaosays** that now day the need of correspondence is key, so every individual having cell phones however all that we can't pass on charger with us. When they going for long ventures we may disregard to pass on cell phone charger.

VI. CONCLUSION

In this work another system for charging adaptable batteries of different organizations making using daylight based power has been made formurals and remote domains where the present supply isn't at all open all the time. This paper is especially significant in regular daily existence. Since now days the need correspondence is essential, so everything having cell phone however every time we can't convey charger with us. when we are going for long travel we may disregard to bring telephone charger.

VII. REFERENCES

- [1] *M.S.Varadarajan., Coin based Universal Mobile Battery Charger, ISSN: 2250-3021 Volume 3, Issue 6 (June 2012), PP 1433- 1438.*
- [2] *Pulvirenti, F. Milazzo, P. Ursino, R. Charger power switch for mobile phones 1997. Proceedings 1997 2nd IEEE-CAS Region 8 Workshop, 13-14 Sep 1997, Pg 97 - 100.*
- [3] *"3rd International Conference on PV Module Recycling".PV CYCLE.Retrieved October 2013.*
- [4] *Weidong Xiao, William G. Dunford, Patrick r. Palmer and Antoine Capel, "Regulation of Photovoltaic voltage," IEEE vol. 54 no.3, pp. 1365 1375, June 2012.*
- [5] *Bose, Bimal K. (2006). Power Electronics and Motor Drives : Advances and Trends. Amsterdam: Academic. p. 126.*
- [6] *Quoting US patent #4938822, High efficiency direct coupled switched mode power supply: The power supply can also include crowbar circuit protecting.*
- [7] *Weidong Xiao, William G. Dunford, Patrick r. Palmer and Antoine Capel, "Regulation of Photovoltaic voltage," IEEE Trans Industrial Electronics, vol. 54 no.3, pp. 1372-1373, June 2007*
- [8] *Rodriguez, Jose; et al. (August 2002). "Multilevel Inverters: A Survey of Topologies, Controls, and Applications". (IEEE) 49 (4): 724–638.*
- [9] *Bedford, B. D.; Hoft, R. G. et al. (1965). Principles of Inverter Circuits. New York: John Wiley & Sons, 1965*

