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Charging Station For E-Vehicle Using Solar With Iot

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Abstract

This Paper Is About Charging E-Vehicle Module Using The Solar Panel, Availability Of Maximum Power Is Viewed By Iot Device And The Maximum Power Generated By The Solar Is Being Tracked Using The Mppt Controller. The Whole Setup Is Connected To The Pic Microcontroller, The Battery Level, Generated, And Distributes An Amount Of The Battery Is Viewed Using An Lcd. Gsm Modem Is Used To Get An Alert Message For Any Reduction Of Power That Occurred In The System. A Web Page Is Used To Check The Availability Status Of The Charge, The Amount Of Power Transferred To The Charging Module And The Available Location For The Charging Station Can Be Displayed. The Main Idea Of This Paper Is To Reduce Greenhouse Gas Emission And Fossil Fuel

I . Introduction

The Demand For Conventional Energy Like Coal, Natural Gas, And Oil Is Raised, So That The Researchers Are Forced Towards The Development Of Renewable Resources Or Non-Conventional Energy Resources. The Upcoming Year Will Come More And More Solar Electric Vehicle Due To These Reasons : (1)Reduction Of Emission Of Fossil Fuel For Extracting Power From Renewable Resources (2)Intelligent Compliance To Electronic Requirements That Facilitate The Monitoring The Availability Of Used Power Using Iot, And(3)Tracking Of Sun's Radiation Throughout A Time. Electric Vehicle Confines The Outlook Of Passenger A Vehicle That Draws Current From The Rechargeable Battery. There Are Three Types Of Electric Vehicles: Hybrid Electric Vehicle (Hev), Plug-In Hybrid (Phev), Battery Electric Vehicle (Bev), An Extended-Range Electric Vehicle (Erev). The Main Objective Of The Paper Is To Provide Power From Solar Pv Cells To The Charging Station In Which The Vehicle Can Be Charged Through The Rechargeable Battery And Also With The Help Of Iot, The Availability Status Of The Charging Station Can Be Monitored.

Ii.Literature Review

1 “Grid-Connected Solar Wind Hybrid Power Based Iot System” By Shweta Dhage, Mohini Pranjale, Sachin Jambhulkar, Nisha Warambhe, Volume:05, Issue:02, Feb-2018.

As The Electricity Demand Is Increasing, The Use Of Renewable Energy Sources To Generate More Amount Of Energy In The Industries And Home Appliances Is Also Increasing. The Solar And Wind Hybrid Generation System Is Economical, Freely Available In The Environment. The Two Main Reasons To Design Solar And Wind Hybrid Generation Systems Using Renewable Energy Sources Are Power Reliability In Varying Weather Conditions And Cost. In The Proposed System, We Are Introducing The Reliability To Deliver A Continuous Supply Of Load And Monitoring It With Iot Interfacing. The System Consists Of A Wind Turbine, Pv Solar, Charge Controller, Battery, Inverter, Grid, And Iot System For Monitoring Electrical Parameters Of The System. The Advantage Of An Iot System Is That The Operator Can Know The Updated Electrical Parameters From Anywhere And Anytime.

2 “Solar And Wind Energy-Based Charging Station For Electric Vehicle” By C.Chellasamy, V.Nagaraju, R.Muthammal, Volume:7, Issue:1, Jan-2018

This Paper Describes The Solar And Wind Energy-Based Charging Mechanism (Swcm) To Generate The Power For Charging The Battery Packs Of Electric Vehicles (Evs). The Renewable Charging Station Consists Of Both The Solar Photovoltaic (Pv) Modules And A Wind Generator. The Swcm Immensely Reduces The Requirement Of Fossil Fuels To Generate Electricity Which Results In Greatly Reduced Co2 And Co-Related Emissions. Renewable Sources Such As Wind And Solar Have Been Modeled Using A Single Diode Model And Analytical Modeling Has Been Done For Wind Energy Generation. The Simulation Model Has Been Developed In Matlab-Simulink For The Proposed Swcm. The I-V And Pv Characteristics Of The Solar Panel Have Been Studied Under Various Irradiance Levels And Different Parameters Of A Wind Turbine Have Been Studied Under Two Different Loading (1 Kw And 3 Kw) Conditions. There Are Two Unidirectional Direct Currents (Dc) To Dc Converters That Are Connected To The Pv Modules And The Wind Turbine And Six Bidirectional Dc-Dc Converters Are Connected To Ten Charging Points That Provide Charging To The Electric Vehicle. To Balance The Load Demand, The Proposed System Is Connected To The Grid Through A Three-Phase Bidirectional Dc-Ac (Alternating Current) Inverter. The Obtained Results Show That The Proposed Renewable Charging Mechanism Is Suitable For Ev Charging Thus Creating A Pollution-Free Environment.

3 H. Anandakumar And K. Umamaheswari, “A Bio-Inspired Swarm Intelligence Technique For Social Aware Cognitive Radio Handovers,” Computers & Electrical Engineering, Vol. 71, Pp. 925–937, Oct. 2018.

A Novel Dynamic Spectrum Sharing Method Inspired By Natural Communities Based On Social Language Has Been Proposed To Overcome Prevailing Spectrum Underutilization And Scarcity. The Social Cognitive Radio Network (Scrn) Combines Social Data And A Mobile Communication Network By Providing A Range Of Data Delivery Services Concerning The Social Relationship Among Mobile Users. The Research Focuses On Diverse Scrn Applications And Their Handover Issues, A Bio-Intelligent Supervised Learning Approach Called Specpso Is Devised For Performing Social Cognitive Handover (Sch) To A) Evaluate Efficient Spectrum Utilization And B) Increase Data Rate For Applications Like Facebook, Linkedin. Experimental Results Show That The Proposed Sch-Specpso Outperforms 75% More Than State Of Art Mobile Social Networks By Optimizing Various Handover Issues.

Iii.Existing System

In The Last Couple Of Years, There Has Been A Lot Of Discussion Around The Prices Of Fuel Apart From The Deregulation Of Petrol And Fossil Fuel Prices. Moreover, These Threats Of Disruption Of Supplies Have Brought The Focus On Alternate Drive Train Technologies. In The 1800s Electric Vehicles Had Led On The Road. While Robert Anderson, A British Inventor Introduces The First Crude Electric Carriage. The Potential For Alternative Technologies In Automobiles Such As An Electric Vehicle, Which Is First Successfully Discovered By William Morrison, A Chemist In The Us. His Six-Passenger Electric Vehicle Is Capable Of A Top Speed Of 14 Miles Per Hour More Than That Of The Electric Wage.

Iv.Proposed Method

As A Solar Pv Array Plays A Vital Role In A Project, The Model Simply Uses Torches With An Ldr Sensor To Track The Position For Generating Power From The Source Which Helps The Continuous Flow Of Energy. Since The Tilting Angle Of The Sun Varies From 0 O To 180o, Two Sensors Should Be Built For Either Direction I.E., One In The Left And The Other In The Right. Then, The Collected Electric Source From The Pv Cell Is

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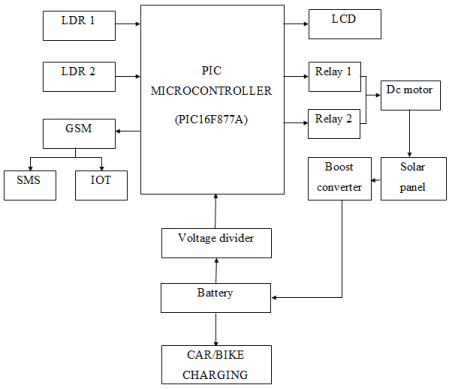
Transferred To The Converter Together With The Boost Regulator Which Increases The Power.

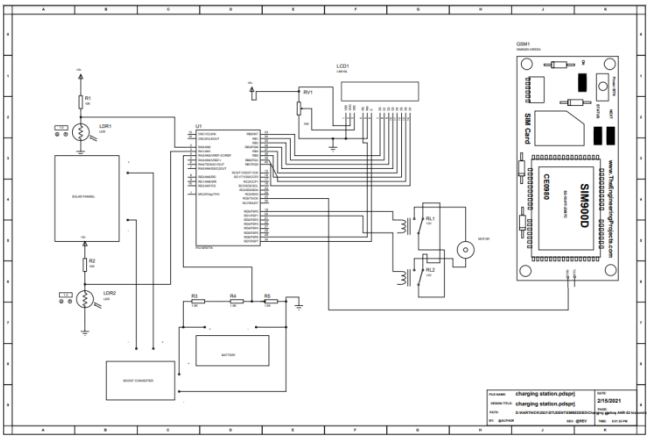
The Entire Dc-Dc Converter Setup Maintains The Reliability Of Output From The Cell And It Should Unbiased Output When It Exceeds The Expected Result To Avoid A Hysteresis Loss. Initially, The Dc-Dc Converter Accepts The Dc Input Voltage And Also Provides S Output As Dc Voltage In Next Level Whether Lower Or Higher Depends On The Requirement Such That Converter Output Voltage Matches The Power Supply Required To The Module.

The Regulated Constant Voltage Is Delivered To An Analog Input Of The Pic Microcontroller To Avoid The Complexity Of The Operation. The Meter Should Help To Monitor The Constant Voltage. Program For Tracking, Delivering, And Displaying The Required Power Output Supply Can Be Loaded On It As Follows From The Easy-To-Use Pic Microcontroller Computer Program

Block Diagram



Circuit Diagram



V.Result

The Output Will Be Updated Every 60 Seconds Mentioning The Charge In Voltage, Time, And Date.

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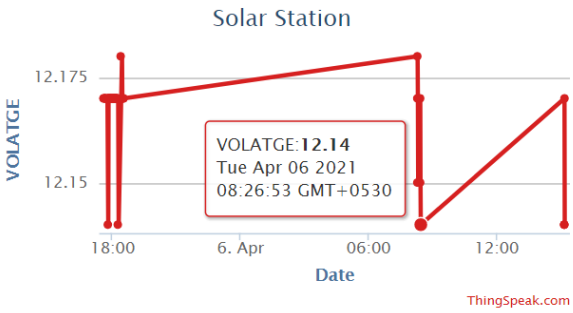

Vi.Conclusion

Internet Of Things (Iot) Based Battery Sensor Monitors The Real-Time Status Of The Battery As An Energy Storage Management System. The Iot Developed Here Uses A Cloud Platform For Management Purposes. The Vehicle User Can Easily Check To The Destination To Reach The Charging Station And Can View The Withdrawal Of Battery Voltage From The System. The Data Stored In The Microcontroller Can Withstand Until The Battery Fails To Charge. For Future Use, Multiple Users For The E-Vehicle Who Settles The Station Are Stored And Upgraded In The Database So That The Distribution To The Different Users Can Be Monitored.

Vii.References

[1] Saroj Mondal, Roy Paily “On-Chip Photovoltaic Power Harvesting System With Low-Overhead Adaptive Mppt For Iot Nodes” Volume:04, Issue:05, Oct.2017.

[2] H. Anandakumar And K. Umamaheswari, “Supervised Machine Learning Techniques In Cognitive Radio Networks During Cooperative Spectrum Handovers,” Cluster Computing, Vol. 20, No. 2, Pp. 1505–1515, Mar. 2017.

[3] A.Roshini And H.Anandakumar, "Hierarchical Cost-Effective Leach For Heterogeneous Wireless Sensor Networks," 2015 International Conference On Advanced Computing And Communication Systems, Jan. 2015.

[4] H.Anandakumar And K. Umamaheswari, “An Efficient Optimized Handover In Cognitive Radio Networks Using Cooperative Spectrum Sensing,” Intelligent Automation & Soft Computing, Pp. 1–8, Sep. 2017.

[5] M. Suganya And H. Anandakumar, “Handover Based Spectrum Allocation In Cognitive Radio Networks,” 2013 International Conference On Green Computing, Communication And Conservation Of Energy (Icgce), Dec. 2013.

[6] H. Anandakumar And K. Umamaheswari, “A Bio-Inspired Swarm Intelligence Technique For Social Aware Cognitive Radio Handovers,” Computers & Electrical Engineering”, Vol. 71, Pp. 925–937, Oct. 2018.

[7] Anandakumar, "Energy-Efficient Network Selection Using 802.16g Based Gsm Technology," Journal Of Computer Science, Vol. 10, No. 5, Pp. 745–754, May 2014.

[8] C.Chellasamy, V.Nagaraju, R.Muthammal "Solar And Wind Energy-Based Charging Station For Electric Vehicle", Volume:7 , Issue:1,Jan-2018

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[10] Shweta Dhage, Mohini Pranjale, Sachin Jambhulkar, Nisha Warambhe "Grid-Connected Solar Wind Hybrid Power Based Iot System", Volume:05, Issue:02, Feb-2018.