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Design And Implementation of E-Boat using Renewable Energy & Battery Management System

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Abstract

An Electric Boat works similar to an electric car. It has an electric motor , a controller and a battery pack for power to run it . It also has a charging controller so the batteries can be recharged . The motor size depends on the boat size as does the battery pack. The operating principle of electric boats that are driven by electric energy stored in the batteries and also it's propellor operated by using the DC motor or INDUCTION motor. we have implementation of our project is renewable energy run in e-boat Motor and battery management system. By using various sensors we have to measure the voltage in the battery system and show the measurements in the LCD display and calculations are implemented in the back end embedded C programming.

Keywords: Electric Boat, Solar Panel, Motor, Sensor.

1. Introduction

Solar-electric boats are recommended solution for tourist navigation in areas where combustion engines are prohibited (lake, protected areas, etc.).

Actually, many solar-electric boats are available unfortunately these boats have a sporadic use.

This paper wants to represent a base to design a so- lar-electric boat. It desires to be a reference for control- ling of the charge-discharge batteries and for checking the real autonomy of navigation

It's give long battery life because these utilise Less battery for drive motor.[1] Its make combination of two renewable energy and improve the power efficiencies using MPPT system[2]. The contribution of this paper is focused on load's profile sharing b/w a variable speed Diesel Generator, a super capacitor and a battery bank according to dynamic responses of each Source[3].Its make combination of two renewable energy and improve the power efficiencies using diesel generated Speed. [4].This new type of plug-in hybrid boat is produced and it is found that the performances is excellent and expected to spread widely because of easy modification from conventional diesel engine boat.[5]. A super capacitor and a battery bank according to dynamic responses of each Source.[6]. Improve the power efficiencies using diesel generated Speed.[7].

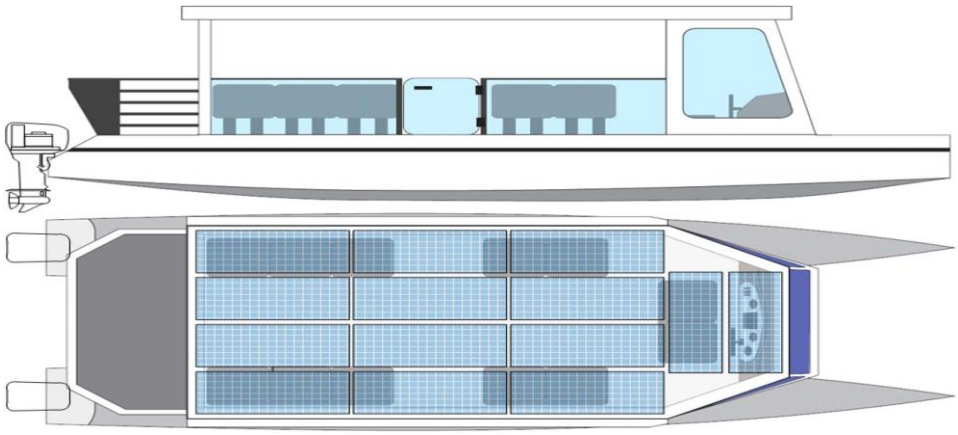

Figure.1. Structure of E-Boat

2. Proposed Methodology

2.1. Proposed System

We have to implement our project is run e-boat Motor and battery management system using renewable energy. By using the intelligent device we have to calculate the battery voltage level and mileage of e-boat . The intelligent device shows the calculated data's in the 16x2 LCD display. We can intimate to the boat operators, what's the battery back up and how much distance it will be run the motor by using this system.

2.2. Block Diagram

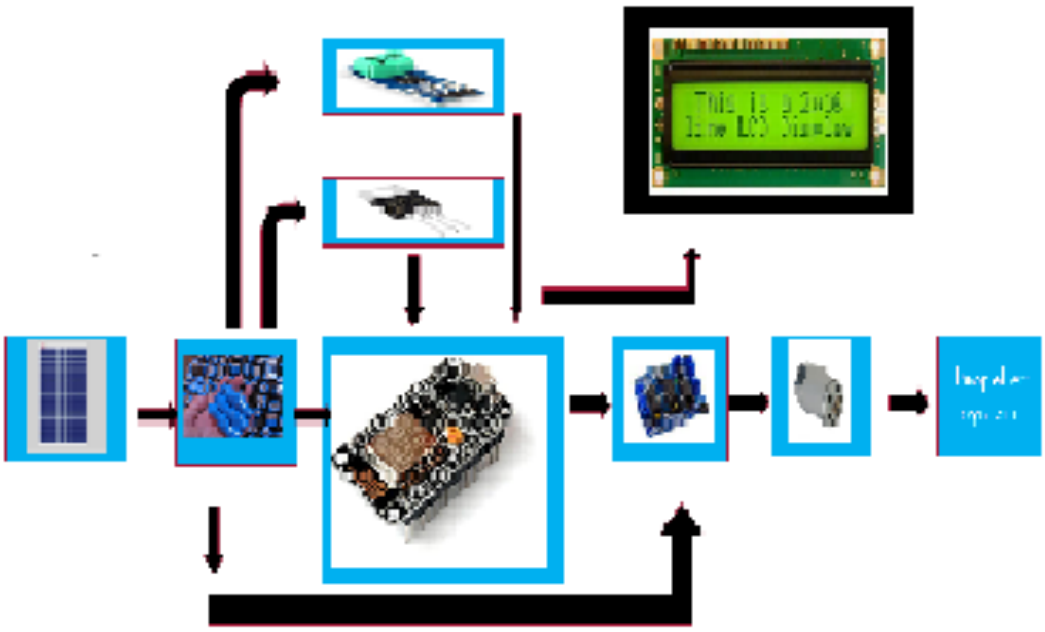

Figure.2. Block Diagram of E-boat

2.3. Working Principle

This E-boat that we have designed is solar powered and battery powered. A microcontroller is used as a charge controller and decision maker. And this microcontroller uses a voltage sensor to tell us how much battery storage is in the E-Boat via an LCD display. Also, the microcontroller is the primary decision maker in this E-Boat design. Atmega 328p

microcontroller is used in this. According to the data coming from the voltage sensor, the embedded C programming written in the microcontroller compares the data coming from the sensor and the battery storage system this E in -Boat, how far will the E-Boat go? It also informs the driver through the LCD display. It is powered by naturally available solar energy without using any fuel like diesel or petrol.

2.4. Circuit Diagram

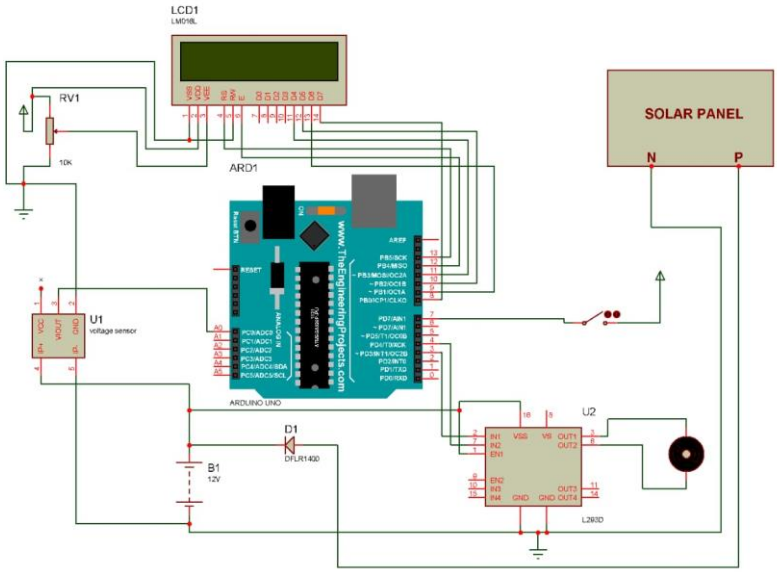

Figure.3. Circuit Diagram

3. Result

We have to implement our project is run e-boat Motor and battery management system using renewable energy. By using the intelligent device we have to calculate the battery voltage level and mileage of e-boat . The intelligent device shows the calculated data's in the 16x2 LCD display. We can intimate to the boat operators, what's the battery back up and how much distance it will be run the motor by using this system .

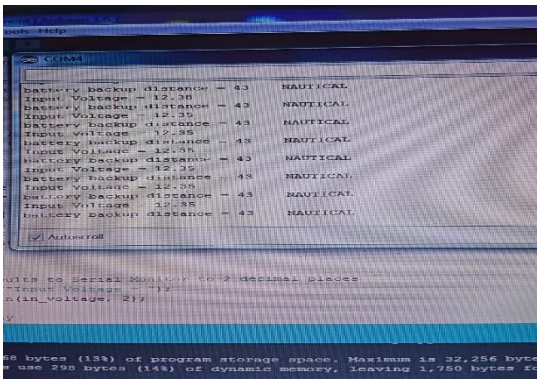

Figure.4. Voltage Sensor Output

4.Conclusion

Solar-electric boats are recommended solution for tourist navigation in areas where combustion engines are prohibited (lake, protected areas, etc.). Actually, many solar-electric boats are available unfortunately these boats have a sporadic use. This paper wants to represent a base to design a so- lar-electric boat. It desires to be a reference for control- ling of the charge-discharge batteries and for checking the real autonomy of navigation

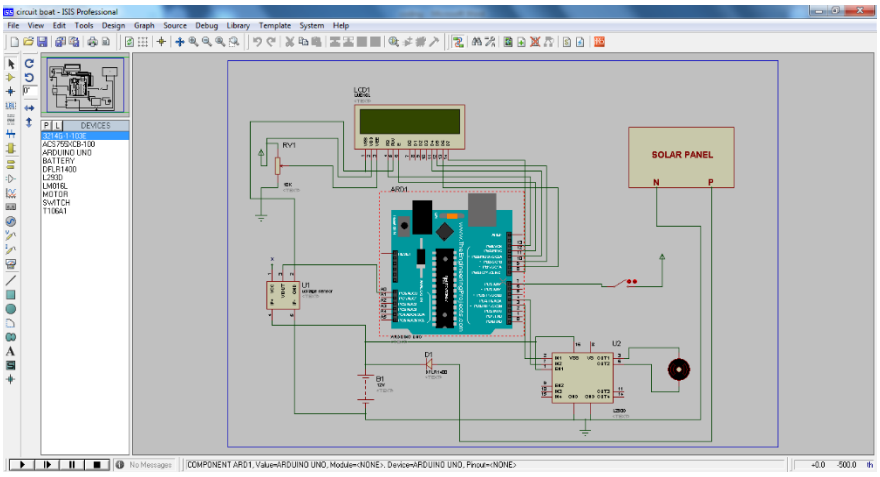

Figure.5. Final Output

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