GENERATING OF POWER THROUGH WHEELS OF A VEHICLE WITH SMART LIGHTING SYSTEM

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Abstract: ***This idea is developed to generated energy from the moving wheels of the vehicle & stores it in a battery. The produced energy is stored in the battery and the voltage of the battery is displayed on the LCD screen. So dynamos are installed to the front wheels of the vehicle to generate the energy from the moving wheels which is turn rotates the motor that generates power and stored in battery and used for automatic lighting system.***
In addition to this wheel power, solar panel is also placed to generate power for sun and is used for moment of vehicle and wheel power is used for smart lighting system to the vehicle. The concept mentioned is aimed to design and implement generate power from moving wheels and automatic lighting system for automobiles by which the vehicle can be protected by avoiding collision with other vehicle.

Keywords: Solar Energy, Dynamos, Lighting System, LCD

I. INTRODUCTION

In today's world of sophisticated automotive electronics, it is easy to forget how far the technology has come in a relatively short time. In the early 1970's, other than radios and tape players, the only standard electronic components and systems on most automobiles were alternator diodes and voltage regulators. By the fall of 1974, "there were twelve electronic systems available, none of which were across the board standard production items. The twelve electronic systems or subsystems were: alternator diodes, voltage regulators, electronic fuel injection, electronic controlled ignition, intermittent windshield wipers, cruise control, wheel lock control, traction control, headlamp control, climate control digital clocks, and air bag crash sensors.

In the early days of automotive electronics, the automotive industry and the electronics industry were often at odds. Car makers needed inexpensive components and systems that would operate reliably in the extremely harsh automotive environment. The electronics industry, on the other hand, used to producing high quality but expensive parts and systems for the military, was skeptical about its ability to produce the components the automobile industry wanted at the prices they demanded. But both industries realized that electronics could provide the capability to solve automotive problems that defined conventional mechanical or electro mechanical approaches.

Thus it was in 1973 that Trevor Jones (then with General Motors), Joseph Ziomek (then with Ford), Ted Schaller (Allen Bradley), Jerry Rivard (then with Bendix), Oliver McCarter (General Motors), and William Saunders (Society of Automotive Engineers), proposed that a new conference be held in 1974. Dubbed Convergence to signify the coming together of the two industries, the first conference was successful and sponsored alternately by the Society of Automotive Engineers and the Institute of Electrical and Electronics Engineers, it has been held successfully every other year ever since.

II. LITERATURE SURVEY

The world is looking for the alternative source of energy to cope with the ever increasing demand of power and the Government and the companies are spending huge money for the Research and Development of other mode of fuel/power in all over the world. There is a huge shortage of Power resources in world. So here is an idea on power generation that is pretty simple. We have heard about solar power, Wind Power etc. A moving water can do work in turning a turbine for generating electricity & moving wind can do work in the turning the blades of wind mill. Thus, a moving body is capable of doing work and hence possesses energy.

Within my proto type demonstration module is built having a solar power placed on top of the automobile and solar power from sun is produced and also the vehicle is built with two Electricity motors and 2 dynamos for those four wheels. The 2 wheels on every side are inter-of a chain mechanism. For moving the automobile the leading two dynamos is going to be operating through which the rear two motors is going to be rotating because they are combined with chain mechanism using the front wheels. So while the pair of the motors is operated, another two motors are intentionally rotated due the chain mechanism and therefore the power is produced from front two dynamos that are kept in two batteries. For operating from the Electricity motors two 12v batteries are utilized, one for solar power stored and employed for moment of car and the other for store of power produced from dynamo and employed for wise lighting system. The automobile is controlled via a remote in most the directions. Additionally for this wheel power a wise lighting system is made to the automobile. The idea pointed out is targeted to create and implement a computerized lighting system for automobiles through which the automobile could be paid by staying away from collision along with other vehicle. Listed here are those activities:

1) Sun light sensor can be used for activating the mind lights instantly throughout the dark.
2) The machine is made to sense the alternative vehicle light, for preventative measure or no vehicle from the other direction, instantly mind lights is going to be turned off and dim lighting is energized before the vehicle passes. Within this concept accidents could be minimized because of the dazzling lights after-effect of forthcoming vehicle.
3) Although the breaks aren't applied, the tail lamps are going to be triggered instantly, when following vehicle is not far from the forward vehicle.

III. PROPOSED SYSTEMS

PROPOSED SYSTEM

The automobile designed this is actually the remote operated one. Through this remote the automobile is controlled in most the directions. The remote was created with four switches, micro-controller (89C2051) and also the RF transmitter. These four keys are utilized to control the vehicle's direction i.e., to function the in forward, backward, left and right directions. The RF transmitter modulates the information provided by the controller at 433 MHz and transmits the code. Based on this code, within the receiver the controller works the automobile. The handheld remote control unit is certainly not however the transmitter unit by which the automobile is controlled. The primary components contained in the remote controller would be the push buttons, micro controller (89C2051), RF transmitter along with a battery to supply power to all these elements. As pointed out earlier, as many as four keys (push buttons) are utilized to control the automobile which are interfaced using the 89C2051 micro controller. With respect to the key pressed, the controller creates a 8 bit binary code that is given towards the RF transmitter for modulation.

The micro controller, with respect to the key pressed, creates digital data, that is modulated at 433 MHz frequency and it is sent in the transmitting unit with the antenna by means of electromagnetic waves. Receivers for communication systems generally are made such that they're updated to get certainly one of a multiplicity of signals getting broadly different bandwidths and which might fall inside a particular frequency range. The vehicle which includes RF receiver, micro controllers (89C51), bridge rectifier , relays, 2 dynamos, 2 Electricity motors, two durable batteries of 12v for supplying power to any or all these products, a ten watts solar power for charging battery, LCD to display the battery voltage. The RF receiver receives an RF signal, converts the RF signal for an IF signal, after which converts the IF signal to some base band signal, so it then provides towards the base band processor. The controller decodes the information and takes the required action with respect to the program designed in it. The automobile movement could be controlled using the Electricity motors that'll be interfaced towards the controller with the relays. Within this work changing in the rotational motion into straight line motion is implemented. For this function Electricity motors are utilized to create motion within the vehicle. These motors are built within built reduction gear mechanism internally within the motor. So through the wheel movement, the leading wheels with dynamos rotate and therefore the power is produced that's kept in battery. A relay is definitely an electromechanical switch. It's electronically operated. The 2nd battery can be used to supply the ability supply for that automatic lighting system from the vehicle. The very first battery can be used to supply the availability for that controller, RF receiver, and also the relays. Ideas require two different Electricity amounts of 5V and 12V. The batteries because they deliver 12V, can accustomed to drive the Electricity motors with the relays and bridge relays they are driving the sunlight system, where when it comes to remaining electronic circuitry includes microcontroller, 555 timer chips, LM 567 tone decoder IC and RF receiver requires 5V constant source.

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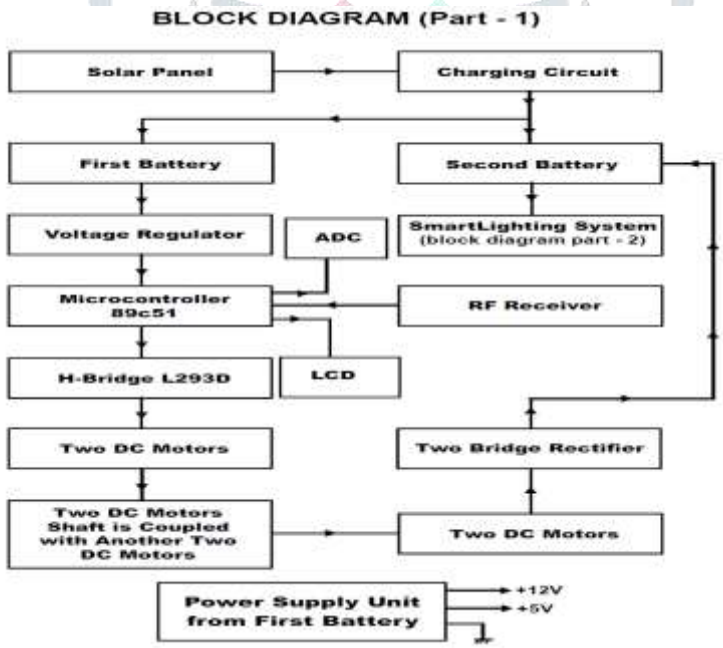

Fig 1 Design of Generating Power Through Wheels of the Vehicle

LDR: Within this project work two LDR'S (light dependent resistors) are utilized as light sensing device. The very first LDR can be used to sense natural light through which mind lights is going to be triggered instantly during sunset and also the second LDR can be used to sense the arrival opposite vehicle car headlights intensity and started up the dim lamps. By using this LDR a possible network was created and wired with 555-timer nick. The input of the network is really a fixed current, nevertheless its output is really a current proportional to concentration of light. This output current is given to trigger pin of timer IC and in line with the current levels created through the network based on the light intensity, the timer nick configured in mono stable mode of operation triggers at 1/3 Vcc & 2/3 Vcc.

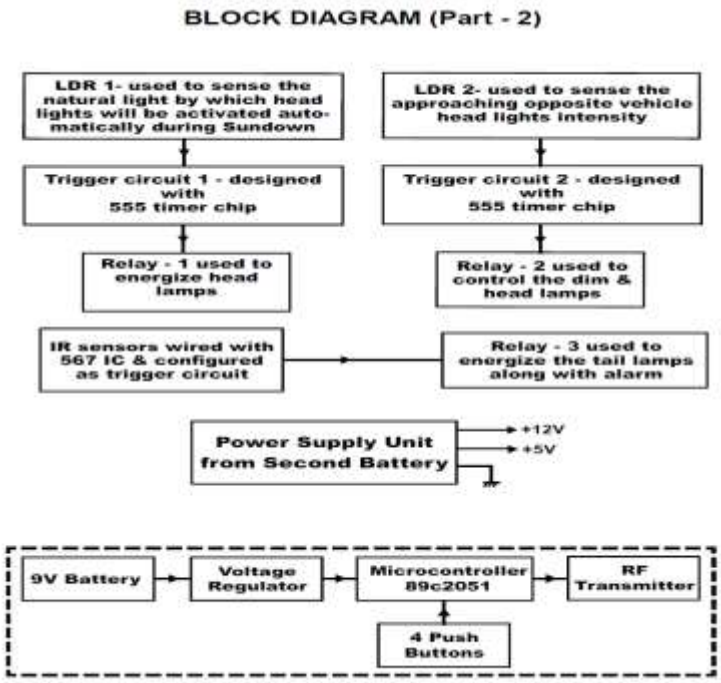

Fig 2 Smart lighting system

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Infrared sensors are utilized within this for that recognition from the following vehicle whenever it transmits an indication towards the tone decoder nick the tail light should operate through relay contacts. The LM567 IC is really a general-purpose tone decoder designed to supply a saturated transistor change to ground when a port signal exists inside the pass band and to indicate whether the output of the sensing circuit is a logic low signal or a logic high signal, a LED is connected at the output pin of the 567-tone decoder IC. If the output is high LED will be in ON state and LED will be in OFF state if the output is low. So whenever the behind vehicle comes very near to the vehicle, this is sensed by the IR sensors and the tail lamps will glow automatically that are operated by the relay in the output of the sensing circuit.

IV. RESULTS

Fig 3 Receiver Part

Fig 4 Transmitter Part

Fig 5 Battery Voltage Display

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V. FEATURES

1. This project is operated using a remote.
2. Power is generated using dynamos and stored in the battery.
3. LDR's are used to detect the intensity of the light.
4. LCD is used to display the power stored in the battery.
5. High beam lights are switched to low beam by sensing the opposite vehicle.
6. IR sensors are placed with the tail lamps to sense any obstacle behind the vehicle.

VI. CONCLUSION

In this paper, we have successfully designed and developed a demo model of "Generating of power through wheels of a vehicle with smart lighting system" was created and developed effectively. For that demonstration purpose, a prototype module is built and also the answers are discovered to be acceptable. As it is a prototype module, an easy moving vehicle is built. Later on this is often implemented electric and fuel operated vehicle. While creating and developing of the proto type module. As it is a prototype module, an easy vehicle is built to show the wheel power generation with wise lighting system. Within this concept the automobile is controlled with a remote. Instantly the automobile is going to be driven through the driver. But instantly we use both power produced from solar and wheels can be used for wise lighting system. The idea pointed out is targeted to create and implement a computerized lighting system for automobiles through which the automobile could be paid by staying away from collision along with other vehicle. To lessen accidents and saving fuel and reduces pollution. Additionally the power that is stored in the battery is displayed using a LCD screen interfaced to the microcontroller.

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