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ULTRA MODERN CAR USED FOR HUMAN LIFE PROTECTION

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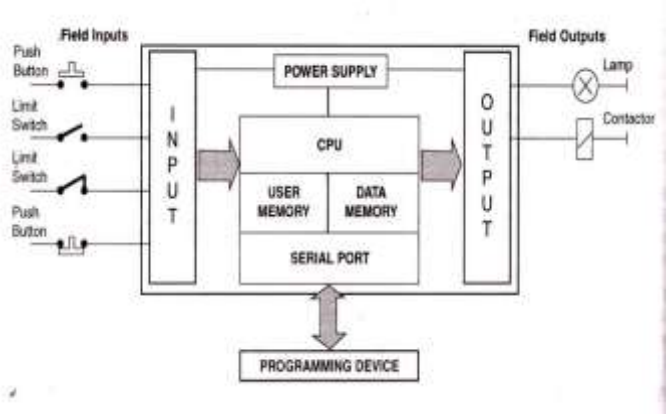
Abstract - *In this modern 21st century road accidents have become very much common and nowadays it is main cause of human injury which can cause death as well. So in this paper our main approach will be to reduce this increasing road accidents in the rural, urban areas & also in the hilly areas. We have designed a ultra modern solar based car, which will be having Hill collision alert system based on PLC model for alerting the driver for the incoming cars in the opposite direction or in the hair pin bends. A Wi-Fi camera module is also installed in the vehicle with a up and down live camera antenna which is installed in the solar cell which will sends real time images which can extend upto 95m, the system also uses pairs of infra-red sensors which are connected with the arduino controller. The car will have convex mirrors which will help the driver during the sharp turns mainly in the hilly areas to navigate dangerous intersections, so this different components and hill collision alert system will definitely help the drivers to detect the incoming cars through a large distance apart and it will reduce the enourmous traffic jams that happens in our country.*

***Key Words*:- PLC1, LED2, Infra-red Sensor3, Wi-Fi module4, Solar Panel5, UDLCA6**

1. INTRODUCTION

Road accidents are the major cause nowadays , it is increasing the mortality rate of our county very rapidly as well as pollution also causes many ill effect such as global warming, respiratory diseases ,breathing problems .So we have designed a ultramodern solar based car which will work on lithium ion battery and will not use any fuel the solar panel is introduced at the roof of the car so due to the use of lithium ion battery instead of any fuel it will not cause any pollution, as well as it will having automatic charging system through the solar panel. The car will also have hill collision alert system which is based on PLC model[1]and a pair of infrared sensors which are connected to Ardriuno controller[1], a Wifi camera module along with UDLCA which is a live camera antenna which will send real time images to the driver who is inside the car.[3] Also the convex mirror which is introduced in the car will help the driver to see if any object comes during the sharp turns mainly in the hilly areas .

1.1 Block Diagram



. **FIG 1:-** Block Diagram Of The PLC System

1.2 Working:-

The block diagram of the PLC model shown is shown in fig:-1 which is being introduced in the car for the hill collision alert system and also we have used some infrared sensor connected with the arduino uno controller the features of the arduino uno are as follows:-

Features:-

- Microcontroller: ATmega328P
- 32 KB of Flash memory
- Operating Voltage: 5V
- Input Voltage (recommended): 7-12V
- Input Voltage (limits): 6-20V
- Digital I/O Pins: 14 (6 pins provide PWM output)
- Analog Input Pins: 6
- DC Current per I/O Pin: 40 mA
- DC Current for 3.3V Pin: 50 mA.

Fig 2:- ATmega(328P)

Fig 3:- Arduino Uno

The arduino uno controls the 2 infra-red sensors and gives warning to the system on the absence of objects present nearby. The two infra-red sensors are placed on front doors of the vehicle on both the sides ,here the ir sensors are mainly used as proximity sensors which measures the distance of any object (eg-cars,rocks) ahead of the car.

2. Proposed System:-

Here we have used an Led which we will use a indicator when any object comes nearby, when a object will come nearby to the car the proximity sensors will be triggered and will send the signal to the PLC and also the speed of the incoming object will be shown in the car so that the driver can easily slow its speed and the led will glow as a result of the triggered PLC and as we have introduced a Wi-fi camera module then the real time images of the incoming object will come to the driver from far apart thus the driver will slow down the car's speed so that any kind of accident does not happen.

Raspberry Pi Camera Module :-

The camera consists of a small (25mm by 20mm by 9mm) circuit board, which connects to the Raspberry Pi's Camera Serial Interface (CSI) bus connector via a flexible ribbon cable. The camera's image sensor has a native resolution of five megapixels and has a fixed focus lens. The software for the camera supports full resolution still images up to 2592x1944 and video resolutions of 1080p30, 720p60 and 640x480p60/90,here we have used 16MP camera.

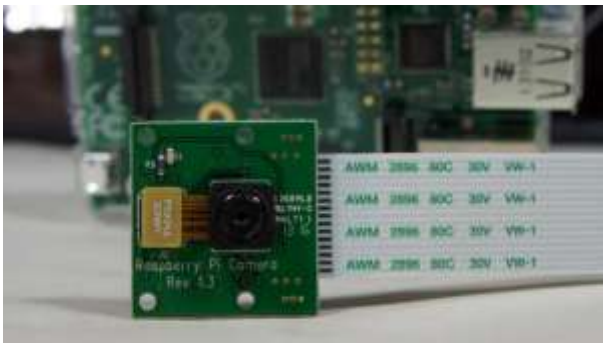


Fig 4:- Raspberry Pi Camera Module

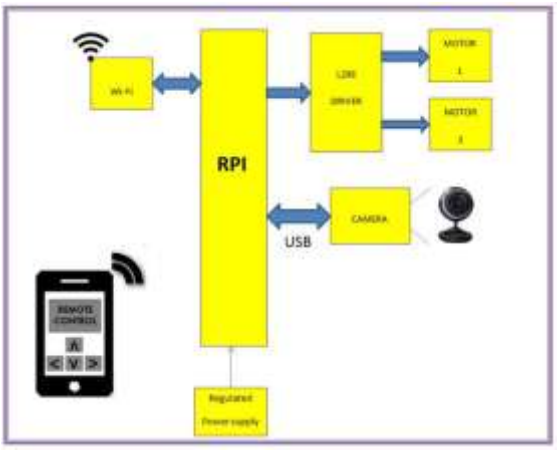


Fig5:- Block diagram of RPI using Wi-fi module

2.1 **Advantages of Ultramodern car:-**

- Fully based on Lithium battery.
- Automatic charging system using Solar panel..
- Hill collision Alert system using PLC system, arduino controller.
- UDLCA(Live camera antenna)
- Wi-fi camera module.

Fig 6:-Ultramodern car

3. CONCLUSION:-

So in this paper we designed and introduced a solar panel based car which will reduce the pollution level in our country, as well as it will help in reducing the number the accidents that happens in day to day. With the help of this car the car driver can easily judge how to control the speed of car and how to easily drive the car without any accident. So I strongly believe this car will be really helpful in the near future.

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