ijRASET

INTERNATIONAL JOURNAL
FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

www.ijraset.com

Call: ◎08813907089 | E-mail ID: ijraset@gmail.com

Smart Headlight and Throttle Control System in Automobile

Miss. Bhagyashri Parit[1], Prof. S. S. Nagtilak[2]

[1, 2]Department of Electronics Engineering, Kit's College of Engineering's (Autonomous), Kolhapur

Abstract: Today's in automotive technical science plays important role within the industry. This paper represents an intelligent way of enhancing safety of an automobile by integrating multiple features. The necessary of this paper two option area unit introduced in one system. The front wheel of steering mechanism with transportable headlights with latest technology and Throttle by wire is that necessary technique underneath Drive by Wire. It plays important role in emission, control, Safety of automobiles .It's appearance easy downside however position management of the throttle valve quite troublesome thanks to its application constraints and system characteristics. It's application of control system. This project helps to introduced new integrated system in automotive field which is helps to transform automotive industry which is affordable to middle class people.
Keywords: Arduino,ATMEGA328, Throttle body, Pedal, Potentiometer, Battery.

I. INTRODUCTION

Here in this proposed work we have to design of integrated system which is gives innovative goals in automobile. Which is helps to introduced in new system which comes in compact design easy to design which is helps to implementation is easily. Now introduction of project is comes to know about the throttle body and its working and also understand working of headlight system which is gives part of the project. New features in automobile is labelled as smart system which is newly implemented.

In automobile throttle body is main part of the automotive engine part which is helps to run the automobile system the throttle body plays an important role in emission of engine. Throttle body is an comes with throttle valve which is called butterfly valve which is supply air to engine. Throttle valve helps to control the speed of engine. Hence throttle body up gradation comes in automotive atmosphere. Throttle body plays a important role in automobile for management speed and power. Automotive throttle body associate in nursing witness the numerous growth, increasing demand for cars in developing region and conjointly up gradation in throttle body facilitate to extend sales of automobiles.

One more system introduced in this paper that is Smart Headlight system which is helps to enhance driver safety whereas driving vehicle in dark night. Smart headlight is preferred to steering control system technique. There are cars that have their headlights directly connected to the steering mechanism so that its lights can follow the movement of the front wheels.

II. DESIGN OF PROPOSED WORK

Number of proposed work are introducing various techniques for throttle valve automation as well as introducing number of system of headlight system which is also called as adaptive headlight technologies are invented but here we have proposed new technology which having simple design with lees number of hardware required. Below figure shows block diagram of our proposed work
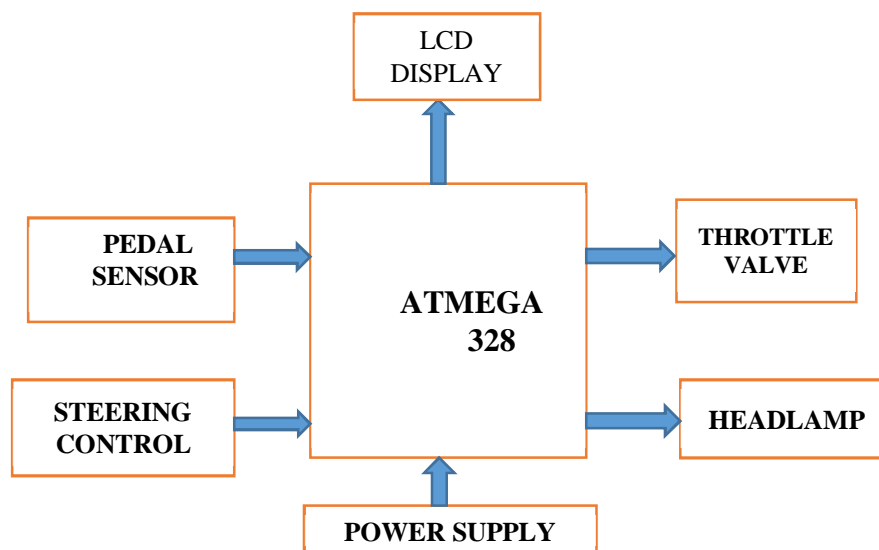

Figure 1 Block Diagram of Proposed work

III. GENERAL SPECIFICATIONS

Our proposed work design consist of input and output block which is contains different objects for working of our project,

The system consist main part

1) Electronic throttle body
2) Accelerator pedal
3) ATMEGA 328
4) Arduino board
5) Potentiometer
6) LCD display
7) Battery

A. Electronic Throttle Body

The main part of the project consist of ETB which consist of position sensor and DC motor to drive the shaft of valve of throttle body. It is part of volkswagen jetta so it is manufactured volkswagen Company and they have not provided any data sheet. The throttle body consist in build sensor i.e. TPS MAIN and TPS SUB.

Figure 2 Throttle body

B. Accelerator

Another main part of the system which is accelerator pedal used in project which h is used as input to the throttle body with the help of accelerator. When accelerator pedal pressed by the driver then gives analog signals to the system nad working of the throttle body valve which is helps to increase speed of engine.

Figure 3 Accelerator Pedal

C. How to Use ATMega328P using Arduino

Here we use arduino for programming platform used for proposed system which is helps to reduce complexity of two techniques collaboration in one single frame. Arduino platform is one of the easy to understand and implement hardware which is helps us to introduce our new control system. Now we try to understand how to use of ATMEGA328P using Arduino. Since ATmega328P is used in Arduino Uno and Arduino nano boards, you can directly replace the Arduino board with ATmega328 chip which is easy to replaceable. For that first you need to install the Arduino boot loader into the chip. This IC with boot loader can be placed on Arduino Uno board and burn the program into it. Once Arduino program is burnt into the IC, it can be removed and used in place of Arduino board, along with a Crystal oscillator and other components as required for the project.
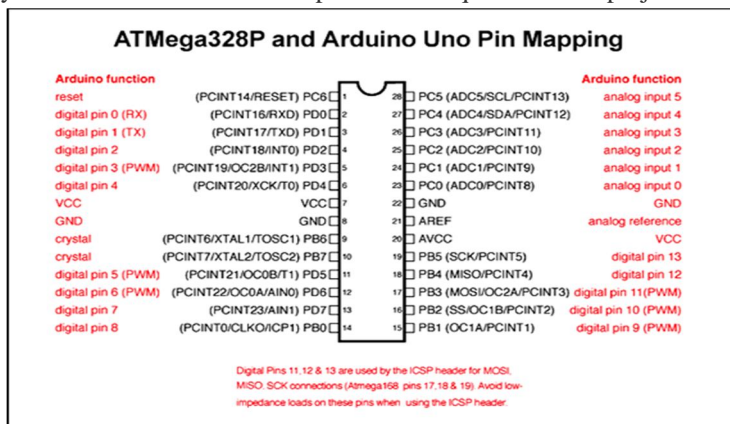

Figure. 4 ATMega328p and Arduino Uno pin Mapping

D. Potentiometer

One of the main object used in project work that is potentiometer. In this project we have used potentiometer as a steering control mechanism and also used static potentiometer features for pedal movement where it is fixed so multi use potentiometer used in this project.
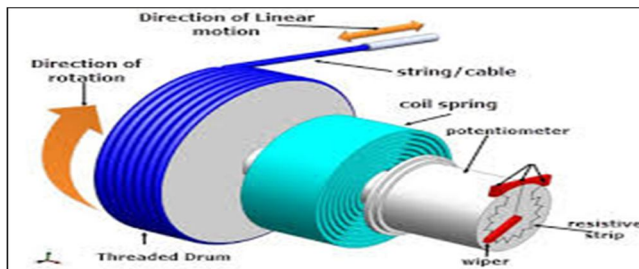

Figure 5. Potentiometer

E. LCD Display

Here we used 16x2 LCD module for displaying different status which are gives output of the proposed work. Here we do programming for displaying output of the system which is helps to know what is the position of throttle body valve and what is the direction of the headlight.

IV.   METHODOLOGY

A. First we design the power supply which is required for controller.

B. Controller having in build digital and analog pins with crystal oscillator, reset switch and other peripheral so next we design the connection of the throttle valve as a output which is necessary input from the accelerator pedal.

C. After that we connect the servo from the output side which is output of the steering control headlight there connection is placed with controller.

D. LCD display connection is also necessary as our requirements.

E. All this connection is made on ORCAD9.2 after that we take PCB design and then manufactured PCB sheet as our project work.

F. Programming for servo motor, lcd display, headlight movement, throttle valve movement that is compiled using Arduino IDE platform.
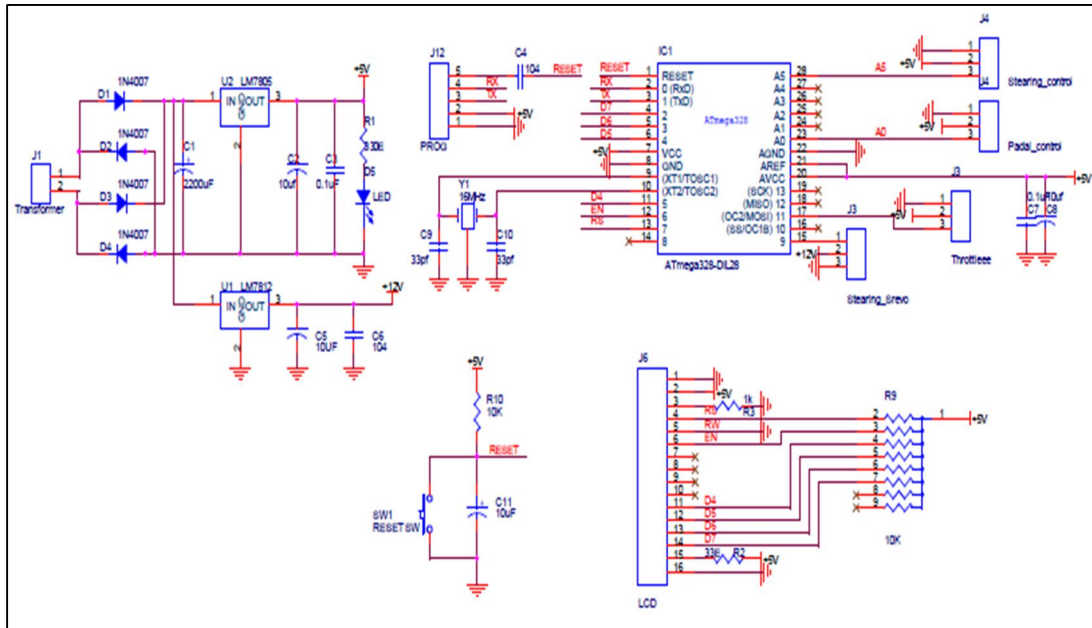
Figure.6 Final Schematic Diagram of Proposed Work

V. RESULT

This project contain two system control from one controller it might be not easy to control two system at a time but in this project its comes to result as we want and our project goal is obtained.

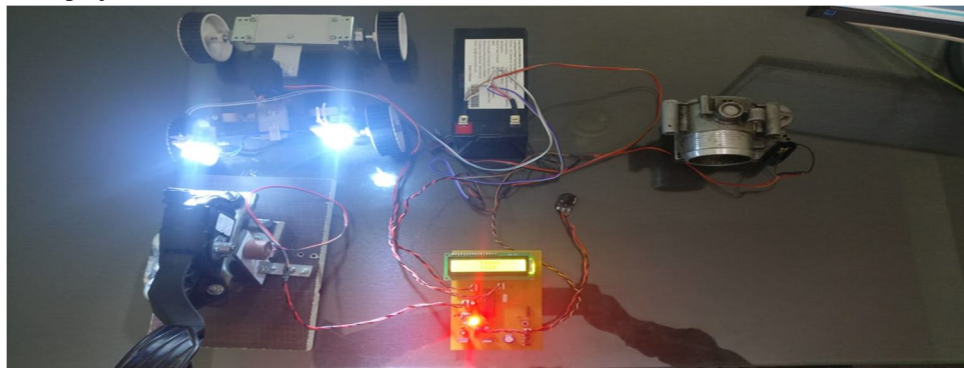Below pictures shows our project work and its result as follows:

Figure 7 Project setup

This is our whole project setup now we have to see result for throttle valve movement as follows

Fig.8 Throttle valve position   Fig.9 Throttle valve status display

Fig.10 Throttle valve position

Fig.11 Throttle valve status display

Another part of the project that is headlight movement which is control by steering here steering as a potentiometer. With help of Arduino IDE platform we built program for headlight movement. Their results are follows

Fig.12 Headlight front position

fig.13 Headlight status display

Fig .14 Headlight right position

Fig.15 Headlight status display

Fig.16 Headlight left Position

Fig.17 Headlight status display

VI. CONCLUSION

Throttle by wire is an very critical system in modern vehicles, this paper introduce Smart headlight and throttle control system in automobile to maintain engine quality, power and speed control of vehicle as well as safety for driver in night time. So our proposed system introduce new technique that is very easy to understand, easy to implement with less number of hardware. Here we are collaborate two technique in single frame using ATmega328 controller. And in future we used highline controller with other specifications.

REFERENCES

[1] Rohit B. Jadhav 1 , S.G.Tahmnakar 2 , Pravin Kamble3 PG Student, Dept. of Electronics, Walchand College of Engineering, Sangli, India1 Assistant Professor, Dept. of Electronics, Walchand College of Engineering, Sangli, India 2 PG Student, Dept. of Electronics, Walchand College of Engineering, Sangli,India.

[2] Saiful A. Zulkifli, V.S.Asirvadam, and Nordin Shad. "Implementation of Electronic Throttle by wire for Hybrid electric Vehicle using National Instrument's Compact RIO and Labview Real Time." 2014 IEEE.

[3] Pengfei Song, Yang Zhang, Xianglong Wu and Yufan LanSchool of Instrument Science and Opto-electronics Engineering Hefei University of Technology Hefei, China, Design and Implementation of the Adaptive Control System for Automotive Headlights Based on CAN/LIN Network, 2013

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 � (24*7 Support on Whatsapp)