Advanced Anti-Collision Vehicle

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Abstract - *The main plan behind creating my "ADVANCE ANTICOLLISION VEHICLE" is to eliminate the chance of accident and supply safety to humans, associate defrayals and infrastructure harm caused because of the accident. machine-controlled anti-collision system by detection obstacles for industry is one the rising technologies nowadays. an automatic vehicle anti-collision system is an automobile safety system that prevents collision among automotives and objects automatically. during this paper, we've mentioned regarding implementation of the epitome of our designed microcontroller primarily based automated car anti-collision system. Our system focuses on detecting obstacles by sharp distance sensing element and alerts among shut distance of collision and hereafter brakes mechanically by mechanism in important distance while not the assistance of driving person. If somehow driver fails avoiding the collision, this technique can automatically stop the vehicle because it monitors the condition of the vehicle continuously. thus it's a user friendly and versatile system which may forestall road accidents, scale back the speed of accidents similarly as accidental death of human life. It is utilized in any quite automobile vehicle as it' a price effective system.*

Key Words: Arduino Board, Heat, GLCD (Graphical Liquid Cristal Display) Arduino, Motor, Distance, LED, Battery.

1. INTRODUCTION

The number of vehicles is increasing day by day associate degreed proportionately the numbers of accidents are increasing. These accidents are largely caused by the delay of the motive force to hit the brake. to forestall the accidents caused by this delay, to avoid these we tend to are victimization advanced anti-collision system that includes of 3mechanism together. the most target of the advanced anti-collision system is that, automobiles ought to mechanically brake once the sensors sense the obstacle. this can be a technology for auto-mobiles to sense the collision with another vehicle or an obstacle, and to brake the car accordingly, which is completed by the braking circuit / relay

2. RELATED WORK

Such as an automated emergency braking system. This system consists of two photoelectric distance measurement sensors, electronic control unit to give input and output of sensor, hydraulic circuit and hydraulic cylinder. The system can work up to 10m. Considering the existing system for

collision avoidance, automatic head-on anti-collision system focused on to avoid head-on collision only. This system consists of Arduino microcontroller, ultrasonic sensor module, RF module and DC geared motors. Microcontroller is used to calculate the distance by using ultrasonic module and checks the measured distance against the respective car's ahead and in critical distance, it automatically stops itself.

3. LITERATURE SURVEY

Introduction

There is an existential issue with removing a driver from the vehicle. you just cannot give 100 percent service convenience nor a satisfactory level of client experience, not these days and not in fifty years. Human interaction is mission-critical. There are several cases wherever an autonomous system is incapable of responding to the amount that the customer needs and is entitled to. the dearth of a person's behind the wheel not solely implies that there'll be vehicle time period because of going long-winded by totally different things however that on the face of it easy services can't be delivered. the rationale is simple, a machine doesn't know how to act with a person's identical means that a human does. The client expertise is presumably the most important issue of all of them once it involves autonomy and that they are available four main categories: rider concerns, emergencies, deliveries, and attended zones.

There are certain technologies that already exists in the area of obstacle detection and anti-collision. Some of them are as mentioned. Each of them deals with the obstacle in a similar way, the only differentiation is the sensor and its technique in recognizing the obstacle and actions initiated. after sensing the obstacle. The following are the different approaches that were implemented in previous attempts of solving the obstacle problem, such as an automated emergency braking system. This system consists of two photoelectric distance measurement sensors, electronic control unit to give input and output of sensor, hydraulic circuit and hydraulic cylinder. The system can work up to 10m. Considering the existing system for collision avoidance, automatic head-on anti-collision system focused on to avoid head-on collision only. This system consists of Arduino microcontroller, ultrasonic sensor module, RF module and DC geared motors. Microcontroller is used to calculate the distance by using ultrasonic module and checks the measured distance against the respective car's ahead and in

critical distance, it automatically stops itself. Another system is car anti-collision and intercommunication system using communication protocol. A wireless communication technologies is used here to enable vehicles to communicate in order to share vehicle state information and information is to avoid potential collision. In addition, vehicle anti-collision system is implemented using Electromagnetic and Ultrasonic sensor. This device consists of electromagnetic strip, ultrasonic ranger finders, GSM. The ultrasonic ranger finder continuously tracks the distance and sends it to the Engine Control Module (ECM) and it automatically actuates the electromagnetic induction.
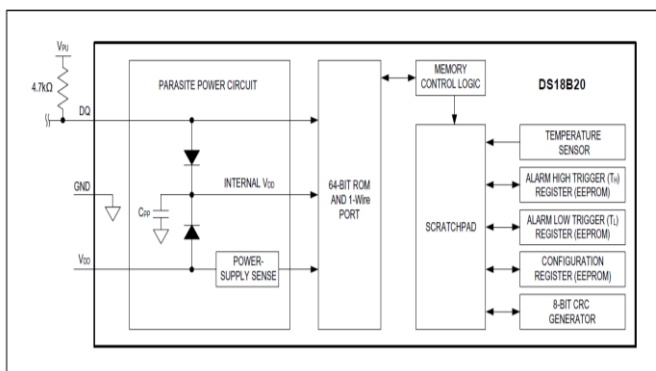
4. BLOCK DIAGRAM

Fig -1: Block Diagram

4.1 Block Diagram Description

1) GLCD Display

GLCD could be a show device which will be utilized in embedded systems for displaying knowledge and/or images/custom characters. Basically, 128x64 Graphical alphanumeric display is a matrix of elements. every pixel is accessed by their X and Y address. we are able to merely visualize any pixel by creating its price HIGH. I'm about to interface jhd12864e graphical lcd with 8051 microcontroller. to find out regarding full pin description and internal organization of pixels of jhd12864e graphical lcd please bear the straightforward tutorial. this can lead you to simply perceive the code written below.

2) LED

Light emitting diode (LEDs) are sources of semiconductor light. the sunshine emitted by the light-emitting diode varies visibly to the infrared and ultraviolet regions. They operate at low voltage and power.

On the idea of semiconductor diode, the LEDs emit photons once the electrons recombine with the holes of direct polarization. each terminals of the LED are the anode (+) and also the cathode (-) and may be known by their size. The

longest leg is that the positive terminal or anode and a shorter terminal is negative.

3) POWER SUPPLY

A device to convert the out there power of a bunch of functions to meet such requirements. the everyday power provide application includes dynamical raw input power into a voltage And or management junction rectifier or stable for the operation of current electronic equipment. Power provides belong to the sphere of power electronic, the use of electronic for the management and conversion of electrical power. A diet is often known as an influence device and conjointly the strategy is termed energy conversion. the aim of each part among the ability provide vogue circuit. Power is that the initial and most significant a part of our project. For our project we'd sort of a regulated +5 V with a most rating of 5 hundred mA

4) Jumper Wires:

A jump wire (also called jumper wire, or jumper) is associate electrical wire, or cluster of them in a very cable, with a connecter or pin at every finish (or generally while not them – merely "tinned"), that is often wont to interconnect the parts of a bread board or alternative paradigm or take a look at circuit, internally or with other instrumentation or components, without attachment

5) Buzzer:

A buzzer or beeper is an audio signaling device which may be mechanical, electromechanical or piezoelectric. Typical used of buzzers and beepers include alarm devices, timers and confirmation of user input such as mouse click or keystroke.

6) Switches: In electrical engineering, a switch is an electrical element which will disconnect or connect the conducting path in an electrical circuit, interrupting the electrical current or fun it from one conductor to another. the foremost common form of switch is an mechanical device consisting of 1 or a lot of sets of movable electrical contacts connected to external circuits. once a combine of contacts is touching current can pass between them, whereas when the contacts are separated no current can flow.

7) DC Gear Motors :-

Geared DC motors may be outlined as associate degree extension of DC motor that already had its Insight details demystified here. A back-geared DC Motor features a gear assembly connected to the motor. The speed of motor is counted in terms of rotations of the shaft per minute and is termed as revolutions per minute. The gear assembly helps in increasing the force and reducing the speed. victimization the right combination of gears in an exceedingly gear motor, its speed can be cut back to any fascinating figure. this idea

wherever gears reduce the speed of the vehicle however increase its torque is thought as gear reduction. This Insight can explore all the minor and major details that create the gear head and thus the operating of back-geared DC motor.

8) RELAY :-

The relay detects the device that detects the fault And sends a visit signal to the breaker to isolate the faulty section. A relay is AN automatic device by suggests that of that an electrical device is indirectly controlled and controlled by a modification among identical or another circuit. There are utterly totally different

a) Ultrasonic Ranging Module HC - SR04

Ultrasonic ranging module HC - SR04 provides 2cm - 400cm non-contact

measurement function, the ranging accuracy can reach to 3mm. The modules

includes ultrasonic transmitters, receiver and control circuit. The basic principle

of work:

(1) Using IO trigger for at least 10us high level signal,

(2) The Module automatically sends eight 40 kHz and detect whether there is a

pulse signal back.

(3) IF the signal back, through high level , time of high output IO duration is

the time from sending ultrasonic to returning.

Test distance = (high level time velocity of sound (340M/S) / 2,

Wire connecting direct as following:

_ 5V Supply

_ Trigger Pulse Input

_ Echo Pulse Output

_ 0V Ground

b) ARDUINO

Fig -2: Arduino UNO

Arduino is associate computer code document company, hardware and package system, project and users that vogue and manufactures microcontrollers and microcontroller kits to create digital cameras and interactive objects that will observe and management objects within the physical world. Project product are distributed within the style of open supply hardware and software at a lower place the gnu Lesser General Public License (LGPL) or the wildebeest General Public License (GPL) for the manufacture of Arduino boards and software distribution for any person. Arduino boards are accessible commercially in pre-assembles form, or as homespun kits. Arduino table designs use a diffusion of microprocessors and controllers.

c) WORKING

Relay is wood regulate Varda. Arduino is getting av supply * Regulator is used to convert TV to 60 as Arduino works GV. All the sensors ultrasonic, OLED, LED, Relay are but & heat sensor are controlled by * The 4 cells that we have used is controlling the de motor / movement. The switch implanted is used for switch. on/off of av battery. The buzzer sound is different for sensing and heat sensor, & different LED used. When the temp increases the sac both LED 2 buzzer makes sound but when the temp. drops then sock only buzzer switcher off not the LED. LED is turned off after pressing reset button. indicating that until & unless the battery in the EU is checked for the fault the LE D will continue to indicate the fault. Relay is used to stop the vehicle as soon as the obstacle is detected. Working of battery sensor. The led indicating the heat sensor will not turn off until the fault in the battery will be checked only the buzzer will turn off if the temperature of the sensor drop than 50 degree Celsius .

5. ADVANTAGES AND LIMITATIONS

A. Advantages

1. Reduces The Risk of Injury or Death.

2. Teaches The Importance of Staying Alert Less utilization of intensity

3. Great For Vehicles With Huge Blind Spots.

4. Makes Driving in Bad Weather Safer.

5. Cuts Unnecessary Accident Expenses.

B. Limitations

1. At this time, it is believed this limitation can only be overcome with the inclusion of a vision system.

2. The inclusion of a vision system into the system architecture should assist in confirming radar-based data.

6. CONCLUSION

The objective was to scale back collisions therefore on reduce death of persons, death of wildlife, automobile damages and damages to property upon collision and thus eliminate the connected costs. For the system to perform this desired functions, Arduino uno is employed because the dominant system of the car. The code that may be constituted in Arduino are able to verify the separation distances between automobile and obstacle fittingly and can show on the LCD connected and will provide warning by suggests that of on board warning systems, and interact braking at a minimum separation.

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