CAN communication for vehicles

This project aim is to design a CAN communication based transmission system in vehicles. The system is capable of sensing obstacles and will have three different speed sensors. The data will be transmitted over CAN bus and will be displayed on LCD.

Controller Area Network (CAN) is a serial data communications bus developed in the mid-eighties by Robert Bosch GmbH for the German car industry. The CAN protocol is an ISO standard (ISO 11898) for serial data communication. The protocol was developed aiming at automotive applications. Today CAN have gained widespread use and is used in industrial automation as well as in automotives and mobile machines. The CAN protocol is implemented in silicon. This makes it possible to combine the error handling and fault confinement facilities of CAN with a high transmission speed. The method used for distributing messages to the right receivers contributes to gaining a good use of the available bandwidth. This requires a simple transmission medium. A common transmission medium is a twisted pair of wires. A CAN system can also work with just one wire. In some applications different kinds of links, optical links or radio links, are better suited. Though there is transmission hardware standard (twisted pair), it is not uncommon to use different transmission solutions depending on system requirements.

The proposed system makes use of a transmitter and receiver section. The transmitter section is equipped with ultrasonic sensors, speed sensors. The Microcontrollers in transmitter section sends the parameters monitored onto a CAN bus through a CAN transceiver. This data from CAN bus is received by the Receiver section and displays it on LCD, if any obstacles are present. To perform this intelligent task, the Microcontrollers are loaded with intelligent programs written using embedded 'C' language.

The main objectives of the project are:

1. Obstacle sensing.
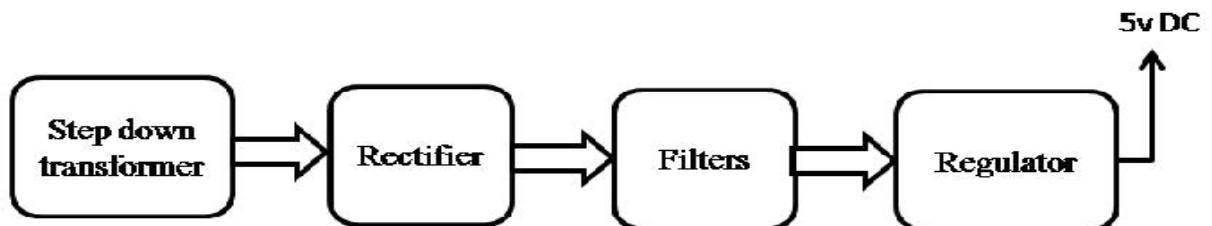2. Usage of CAN protocol for communication.

The major building blocks of the project are:

1. Regulated Power Supply.
2. Microcontrollers.
3. Ultrasonic sensors.
4. Speed sensors.
5. LCD with driver.
6. CAN transceivers.
7. Crystal oscillator.
8. LED indicators.

Software's used:

1. PIC-C compiler for Embedded C programming.
2. PIC kit 2 programmer for dumping code into Micro controller.
3. Express SCH for Circuit design.
4. Proteus for hardware simulation.

Regulated Power Supply:

www.mycollegeproject.com   *Ph: +91 9490219339, 040-23731030*
Ameerpet*:*   *A-8, 2ⁿᵈ floor, Eureka court, beside Image hospital, Ameerpet, HYDERABAD 73.*
Santoshnagar: *Opp: Magna Hypermarket, Santoshnagar X-Roads, HYDERABAD – 59.*

Block diagram:

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