



# COMSATS

Institute Of Information  
Technology

Project: FPGA Based Adaptive Cruise Car Control  
System

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## **Abstract**

Brief Innovation Description: FPGA Based Adaptive Cruise Car Control System (ACC car) using re-configurable Media (FPGA) covers most of the flavored shades of B.S Electronics curriculum, it encompasses both software and hardware tools, and exposed us to techniques of latest digital designs. The indispensable advantage of using FPGAs is that numerous logical modules can be integrated onto a single silicon wafer. We incorporated in this robot (ACC car) an ultrasonic gadget for detecting the obstacles or to observe objects in surroundings, and works as an effective electronic eye for the robot. Sensor calculates the time interval between the sent signal and received echo to determine the distance of an object to adapt and regulate the speed of the vehicle moving in front of ACC car. Automatic braking and accelerating according to targeted car and maintaining of fix distance to avoid any accident will be achieved by using FPGA and ultrasonic sensor. The Robot mechanics will be consists of DC geared motors; a mechanical chain will be used to fortify the Robots strength to carry loads. The system will be powered by a dry battery, rating 12 VDC, 4.5Ah. This battery will be sufficient to keep the Robot in working condition for about one hour.