

EE445L - Lab 08 Report

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Professor Bard
Lab: Monday/Wednesday 5-6:15

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1 Requirements Document

1.1 Overview

1.1.1 Objectives

Our project will be centered around developing a board to form the basis of a teleoperated car. The primary goal is to develop an RC car that will communicate wirelessly with a ZigBee and use onboard sensors to allow a level of self-control.

1.1.2 Roles and Responsibilities

This device is aimed towards DIY and hobbyist groups, as well as high school and college level robotics teams. Gilbert and I will design the circuit schematic and software design layout as a group. PCB routing will be handled primarily by a single person, as it is difficult to share work during this process. The software realization will be written by both of us as well.

1.1.3 Interactions with Existing Systems

We will be using the LM3S1968 board as a controller for our device, using a ZigBee.

1.2 Function Description

1.2.1 Functionality

The system will have an on-board LM3S811 chip to collect data from the ZigBee and interface with the motors. The embedded device will also include motor controllers for actuation, and onboard sensors to allow a degree of autonomy. A power regulator will allow for battery operation.

1.2.2 Performance

ISR lengths through debugging instruments. Current needed to power board with and without motors running.

1.2.3 Usability

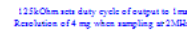
The LM3S1968 will be used to broadcast the wireless signal to the car. User input will be captured using button inputs, and the car's speed will displayed through the onboard OLED.

1.3 Deliverables

1.3.1 Reports

We will write a report for Labs 8.

2.1.1 Control Circuit



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