OCCUPANCY SAFETY MONITOR

College of Technology
University of Houston

Team 11
Senior Project
ELET 4308/ELET 4108
Fall 2005

TEAM 11

Majed Abouhatab

Herman Leung

John Tedesco

Agenda

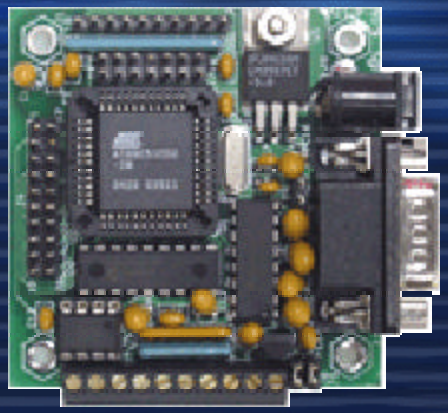
1. John – Introduction & Software
2. Herman - Hardware
3. Majed – Project Analysis

Introduction

Team 11

Hardware

8051 Micro-controller



- Three 16 bit Timer/Counters
- LCD connector
- 32 general purpose I/O pins
- Expansion bus interface

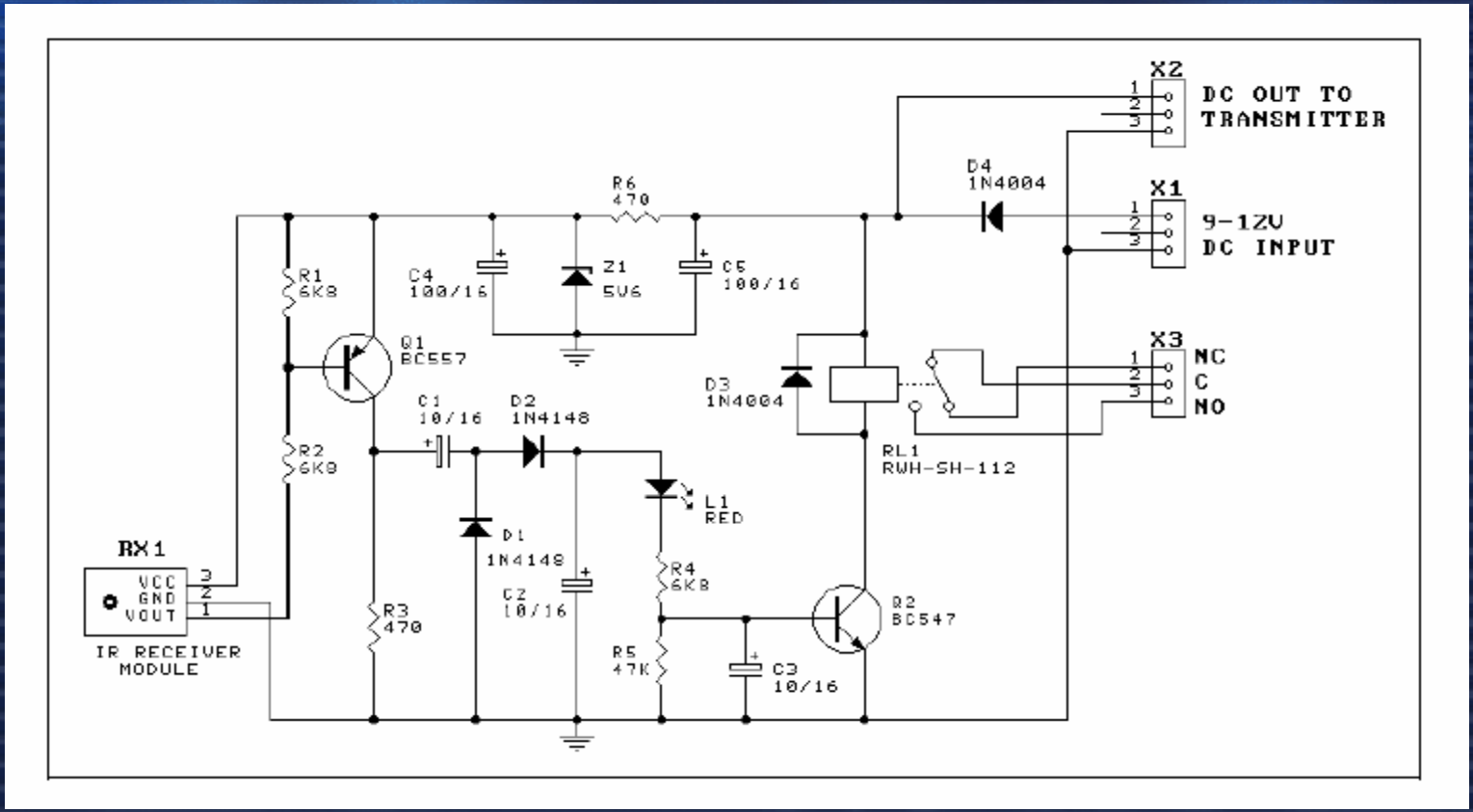
- Programmable LEDs
- Buzzer

LCD

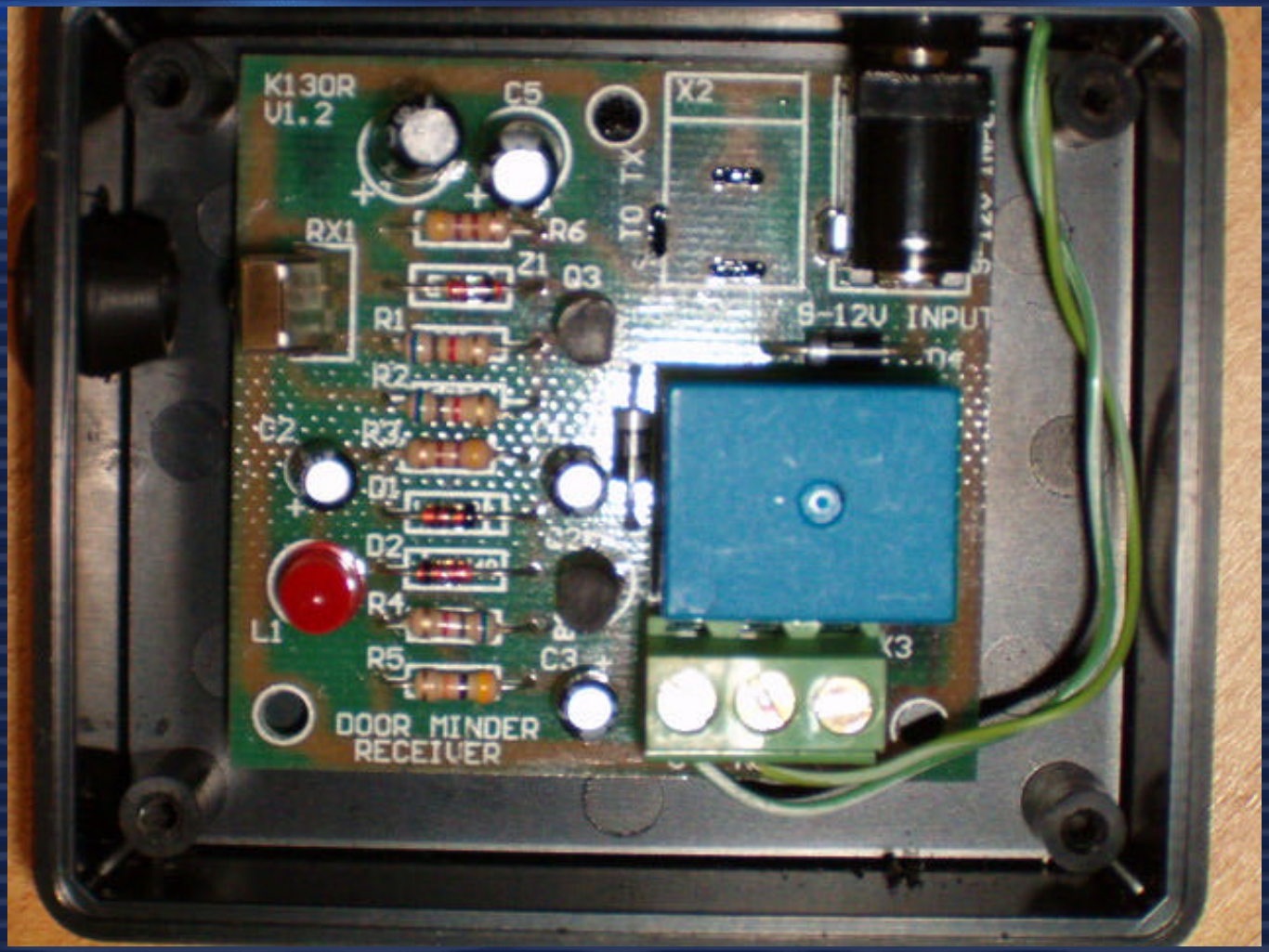
- 20 characters x 2 lines
- Software controlled speed, splash/start-up screen
- I2C mode: Serial transfers of up to 100 Kbps
- Fully buffered - no delays in transmission

Sensors

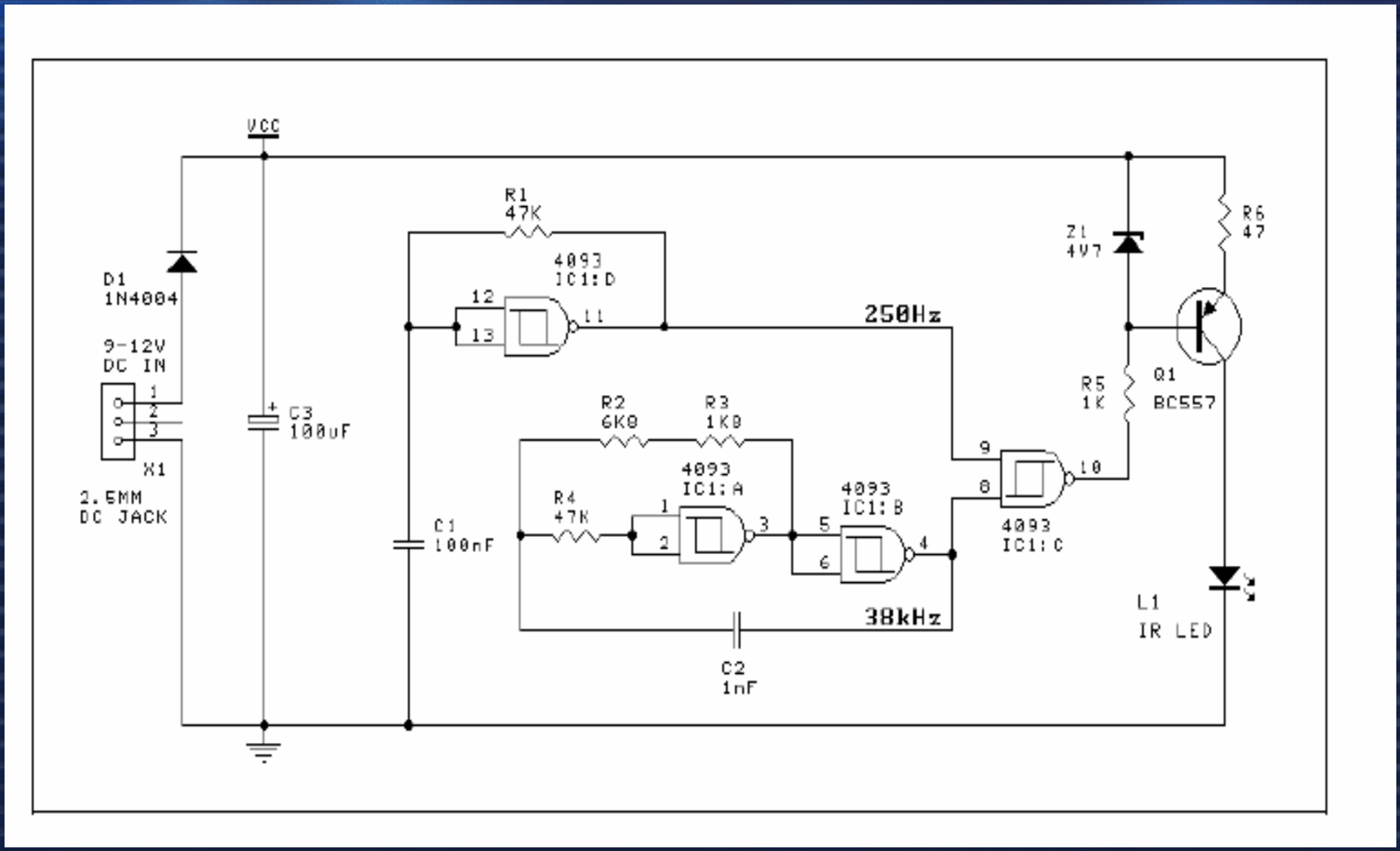
Receiver Circuit



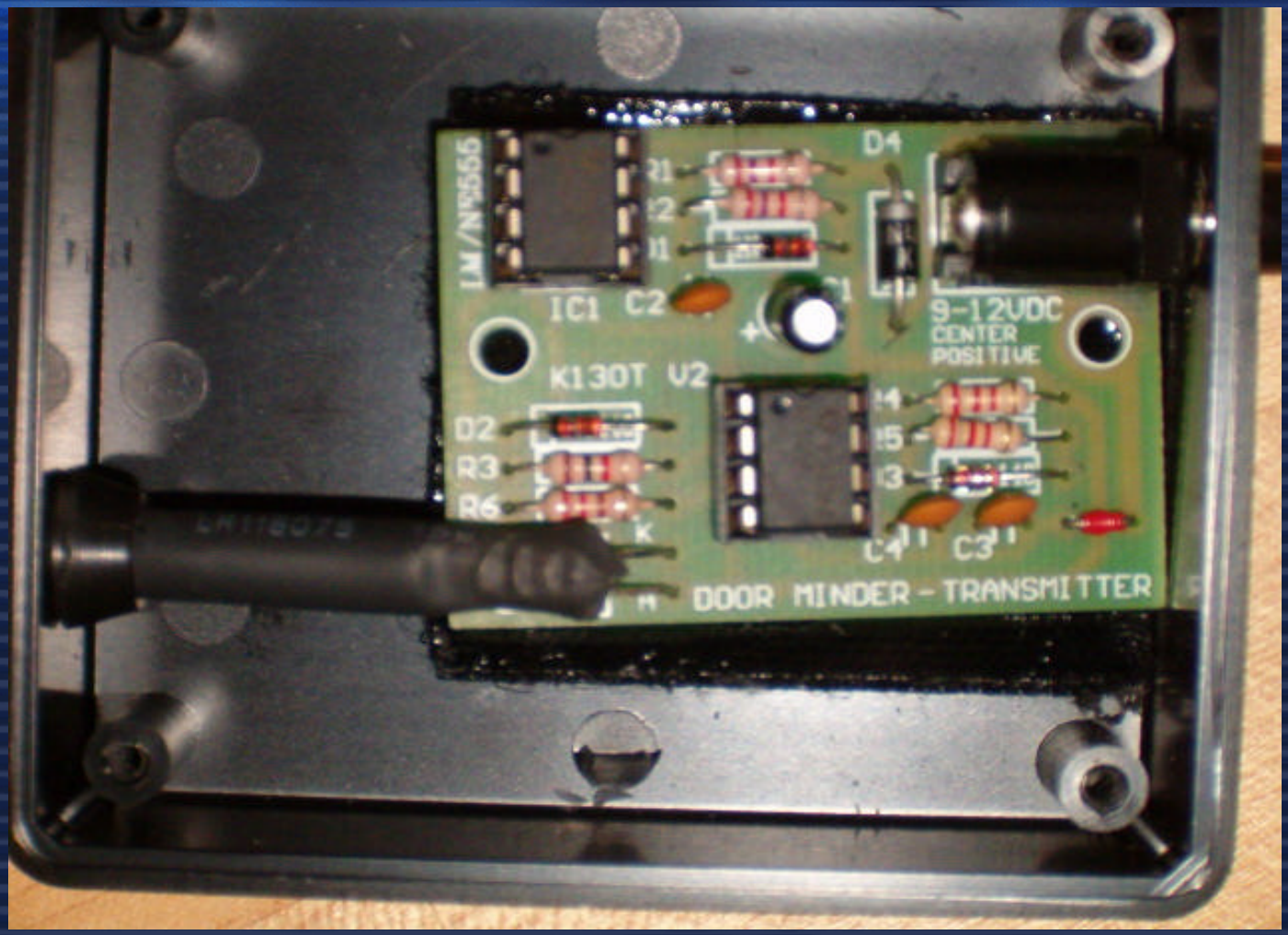
Receiver


K130R
V1.2
C5
X2
TO TX
RX1
R6
Z1
Q3
R1
R2
C2
R3
D1
D2
R4
L1
R5
C3
9-12V INPUT
DOOR MINDER
RECEIVER

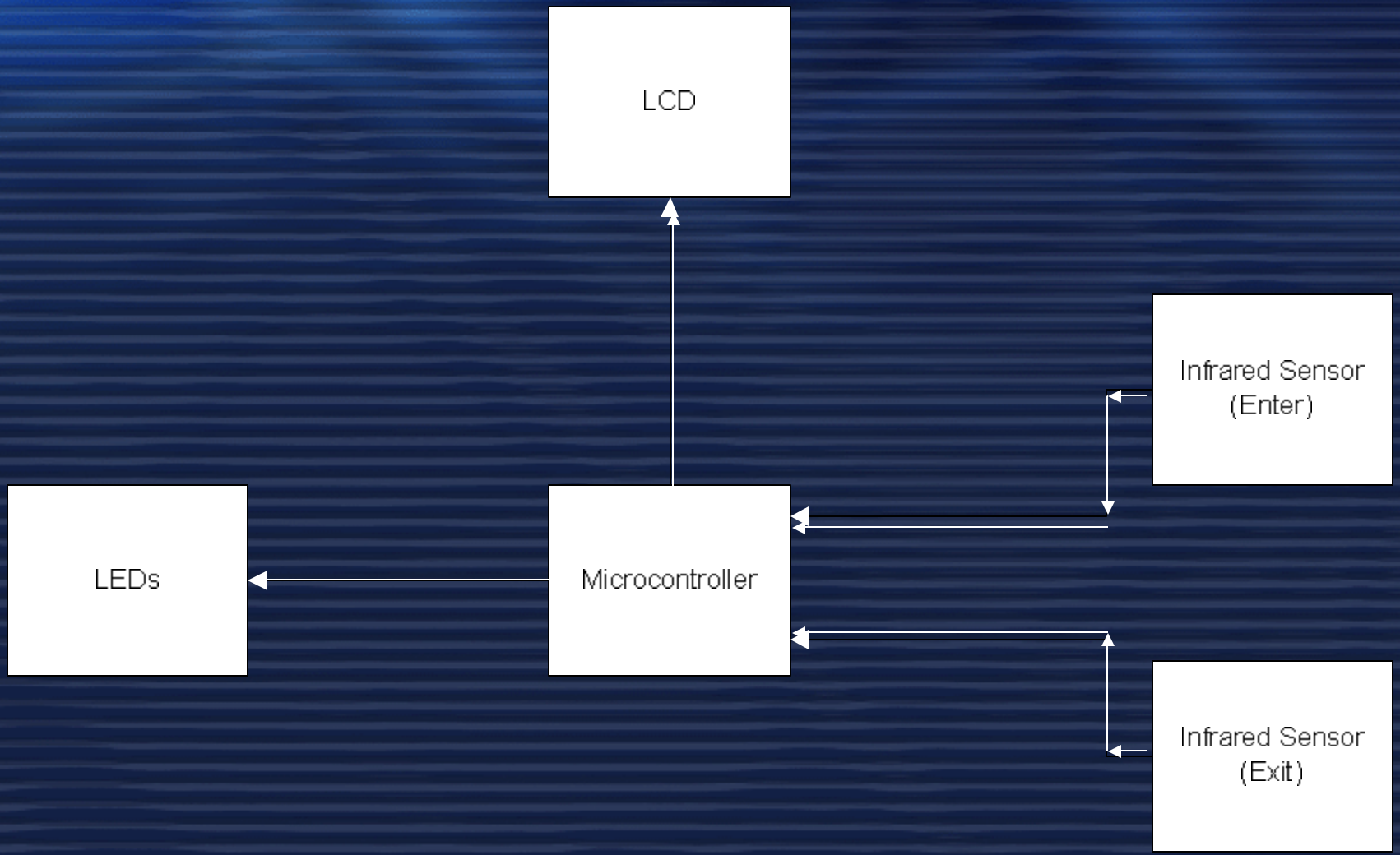
Transmitter Circuit



Transmitter



Hardware Block Diagram



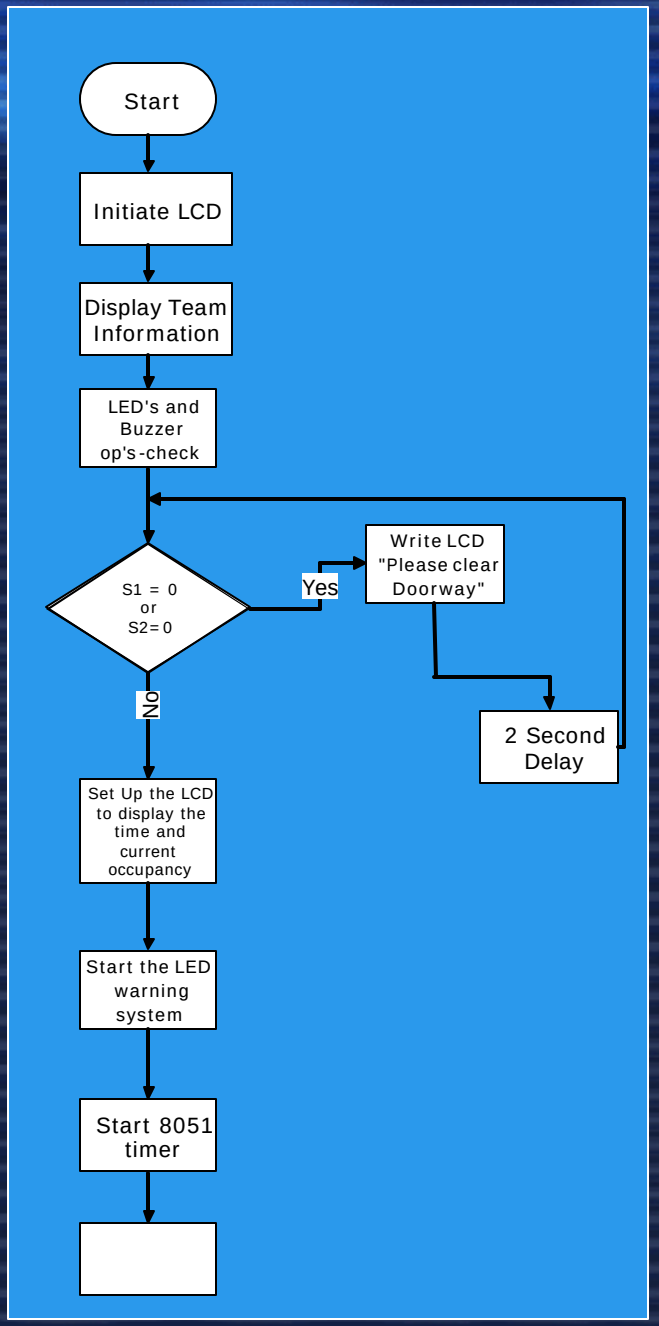
Addition Parts

- 12 Volt Battery
- Electronic Key Switch
- 16 Gauge wires
- Terminal Board

Software

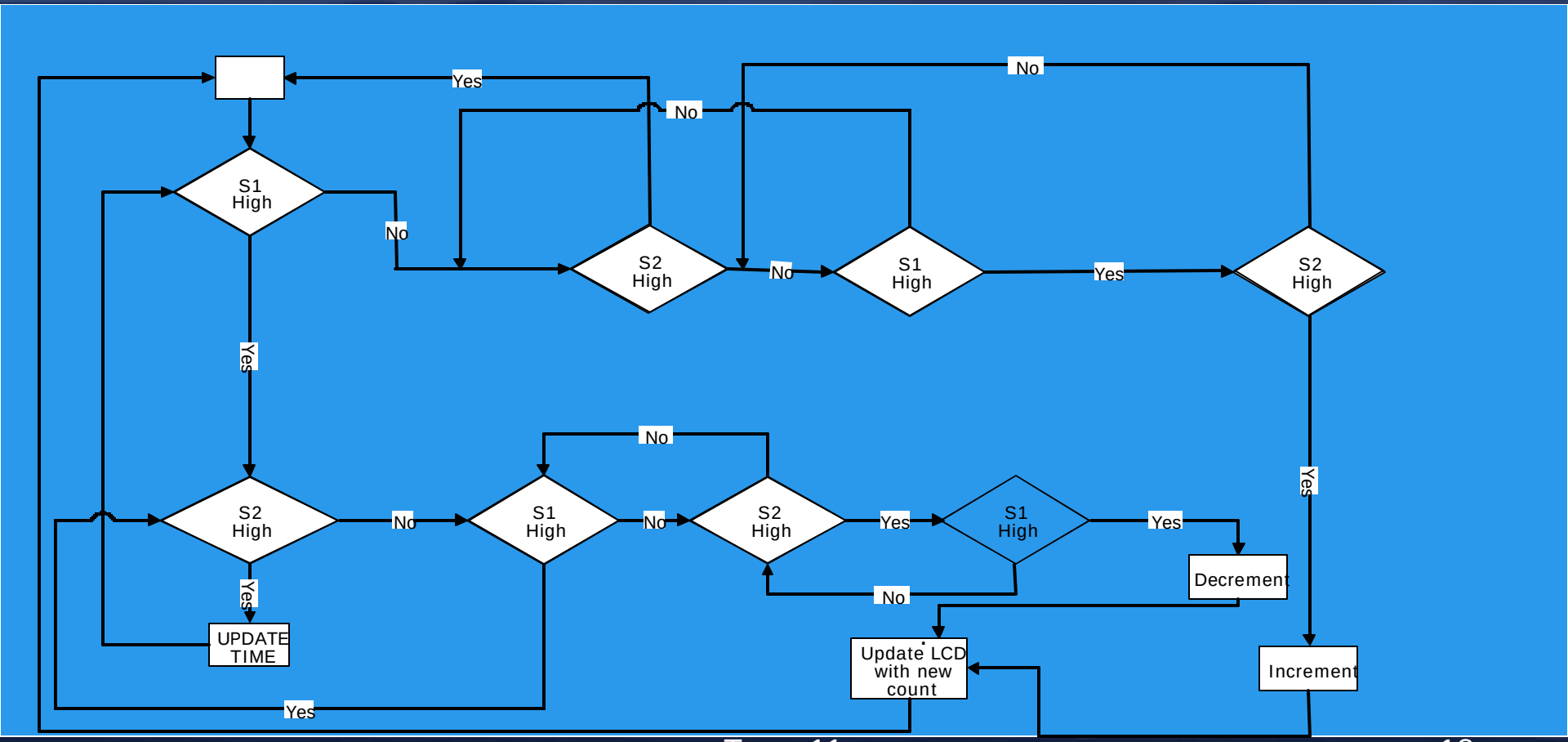
Power Up Flowchart

- The main program will never run if there is something in the door way
- Assuming the power up passes, the timer starts to keep track of the passing seconds

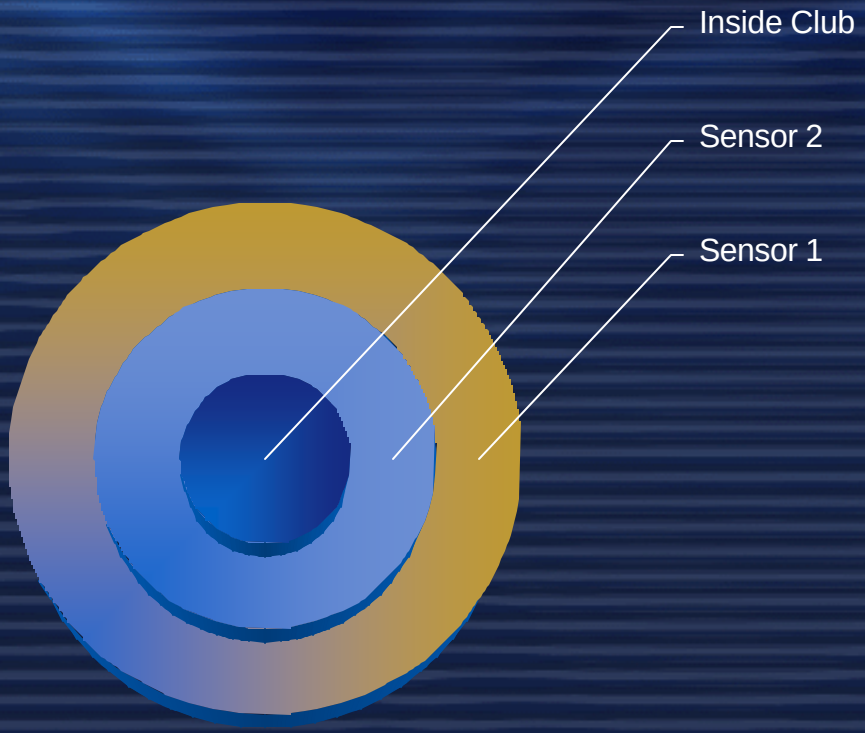


Main Program

- Relays in the receivers are NC contacts.
- High is logic 1
- Low is logic 0



3-D Visual of Sensors

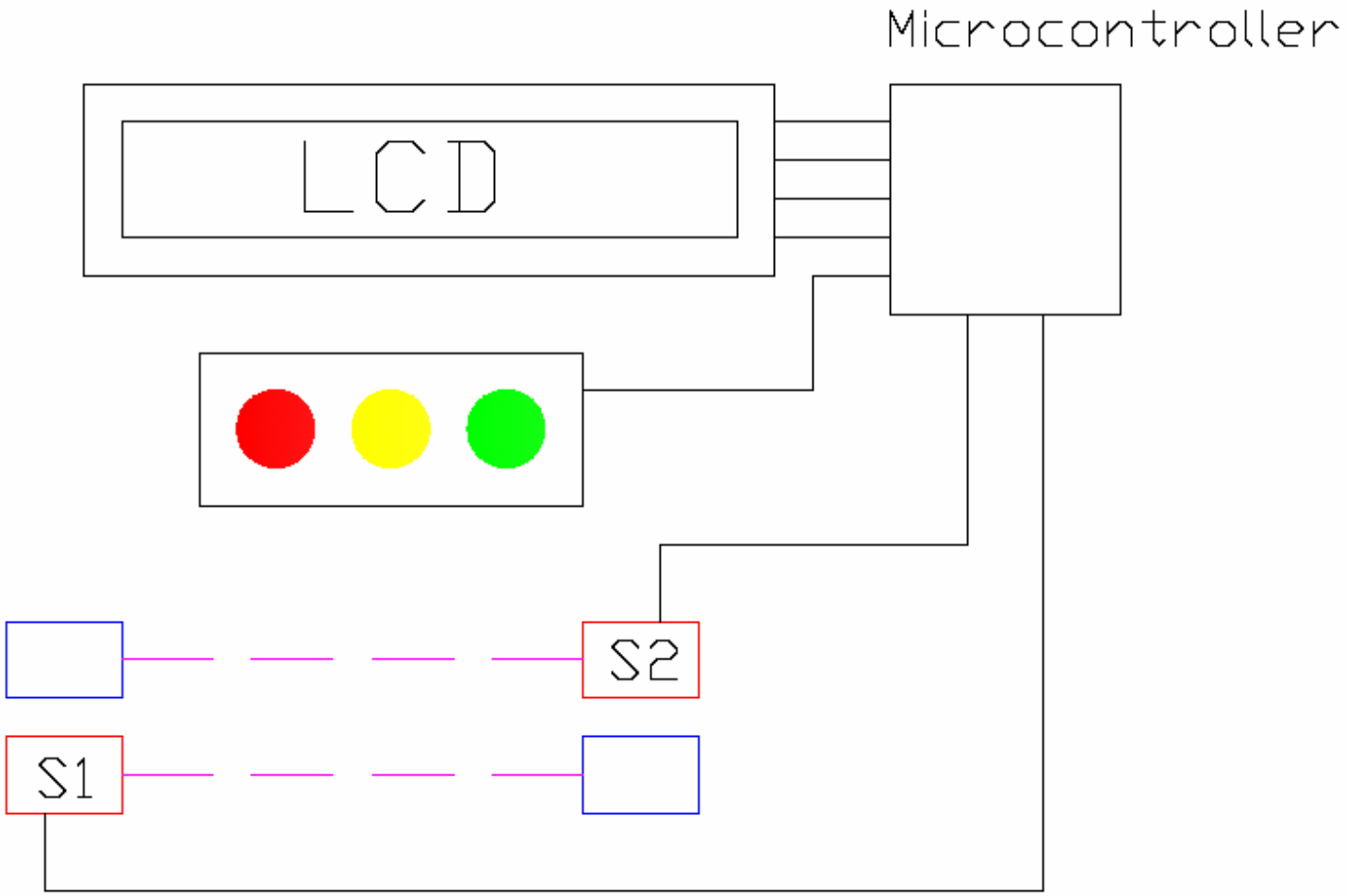


Project Analysis

Prototype

- Dimensions
- Materials
- Challenges
- Cost

Challenges



Financial Resources Usage

Item	Quantity	Est. Cost	Actual Cost
Microcontroller	1	$ 69.95	Donated
Training board	1	$ 39.00	Donated
LCD	1	$ 24.95	$ 21.21
Infrared Sensor Kit	1	$ 18.95	$ 16.11
Enclosure/Plastic Molded	4	$ 19.80	$ 16.83
Infrared Sensor Kit	1	$ 18.95	$ 16.11
Grommet	8	$ 00.80	$ 00.68
Screws	10	$ 01.00	$ 00.85
Key switch	1	$ 01.95	$ 01.65
12 volts rechargeable battery	1	$ 24.95	$ 21.21
Wood, screws, and nails	--	$30.00	26.22
Signs	1	$60.00	Donated
Totals		$ 201.35	$ 120.87

Labor Cost

Total Hours:	623
Cost Per Hour:	$30
Total Labor Cost:	$18690

Total Project Cost

Total Cost: $18810.87

TEAM ELEVEN

Questions?

Comments?

Suggestions?

Remarks?