



Department of Electrical and Computing Engineering

UNIVERSITY OF CONNECTICUT

**ECE 3411 Microprocessor Application Lab: Fall 2016**

## **Question XIV**

There is 1 question in this quiz. There are 3 pages in this quiz booklet. Answer each question according to the instructions given.

You have **5 minutes** to answer the questions.

If you find a question ambiguous, be sure to write down any assumptions you make.

**Be neat and legible.** If we can't understand your answer, we can't give you credit!

**Write your name in the space below.** Write your initials at the bottom of each page.

**THIS IS A CLOSED BOOK, CLOSED NOTES QUIZ.  
PLEASE TURN YOUR NETWORK DEVICES OFF.**

Any form of communication with other students is considered cheating and will merit an F as final grade in the course.

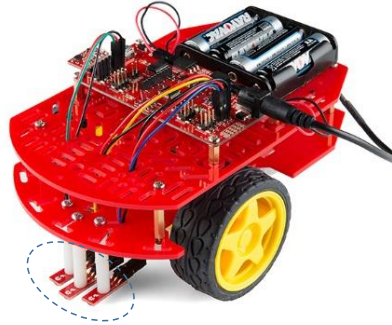
*Do not write in the box below*

<b>Total (xx/10)</b>

**Name:**

**Student ID:**

1. The robot shown below is a RedBot that you will be using in the last lab. It is a line follower which can follow a black line. It has three line sensors in the front encircled by the dashed line. Write a function to control the movement of this RedBot with the help of the given functions.



The functions you can use are:

- void left\_wheel\_forward(void);
- void left\_wheel\_backward(void);
- void right\_wheel\_forward(void);
- void right\_wheel\_backward(void);

The inputs of your program are the values sampled by three line sensors. For each line sensor, suppose that it reads more than  $T$  when it is over the black line. And assume the black line is as thick as a single sensor. Fill the program below.

```
void redbot_control(int left_sensor, int middle_sensor, int right_sensor)
{

}

}
```

End of Question

Please double check that you wrote your name on the front of the question.

**Initials:**