CS308 README



CS308 – 2011 Project

Project: Robotic waiter

The objective of this document is to help someone else run the code that is delivered as part of this project.

**Project Title:**<>

**Students:**

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**Project Objective**

This project aims to make a robotic waiter, which is capable of taking orders from a user. The “orders” are objects which can be coloured red, green or blue. The robot receives the order, and picks up the object when it is ready. It then goes to the position from where the order was initiated, and drops the object.

**Hardware Platform**

1. Firebird V ATMEGA2560
2. Sensors for white line following
3. XBee port for serial communication with the robot; for sending the signals to/from the robot
4. Webcam for image processing

**Software**

1. AVR Studio 4
2. MATLAB

**Code Description**

Code Files.

|  |  |  |
| --- | --- | --- |
| **Filename** | Purpose | Executes on |
| **Pos\_Con\_Interrupts.c** | Main Program which does all the required functions of the robot. | Robot |
| **im\_process.m** | Waits for a signal from the robot, takes an image and calculates the coloured component. | PC. |

**Deliverables**

|  |  |  |
| --- | --- | --- |
| **Filename** | Contains |  |
| **C-code.tar.gz** | SourceCode of programs to be burnt on Robot.  Contains documentation of the code as well. |  |
| **PC-interface.tar.gz** | Contains Matlab files. |  |
| **Documents.tar.gz** | Contains Project related doc files. |  |

**Execution Instructions**

1. Connect the robot to the computer using standard connections.
2. Connect the XBee cable to the computer, and ensure that the XBee on the bot is configured to the XBee connected to the laptop.
3. Execute the file “im\_process.m” on MATLAB. This file waits for a signal from the bot via the XBee port.
4. Open the project using the .aws file on AVR Studio.
5. Compile the project.
6. Burn the code on the robot, and execute it.
7. The robot will go to the set distance and check for presence of the object.

**Coding Guidelines**

Please find attached a zip file with this document. Please refer to this code to write your own code.

Important parts to be taken into consideration.

1. Use the standard “Copyright statement in your code declaring the code to be opensource and property of ERTS Lab”.
2. Use the standard header file “winavr\_firbird.h” which will contain all the implementations of core actuations and sensing.