CS684 Documentation



CS684 – 2010 Project

**Project**: Collaborative Cleaning Robots

**Project Title:** Collaborative cleaning robots

**Students:**

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**Project Objective**

* The Project aims at cleaning an area with collaboration among robots.
* The area is assumed to be rectangular and poles of different colours at each corner of the rectangle helps in localizing and division of the area to be cleaned.
* One of the robots acts as a master robot and instructs the slave robots to clean the area and it cleans the area as well.
* Master robot enters the area and localizes itself and divides the area among robots and assigns them the area to be cleaned.

**Hardware Platform**

1. Firebird V ATMEGA2560
2. Camera
3. Servo Motor
4. Sharp sensor
5. Zigbee
6. 4 Poles, red/blue/green/blue (put in same order)

Camera should be mounted on servo motor, and make sure “90 degree” of servo motor should be in front of robot.

**Software**

1. AVR Studio 4
2. Matlab 7.7.0.471(R2008b)

**Code Description**

Code Files.

|  |  |  |
| --- | --- | --- |
| **Filename** | Purpose | Executes on |
| **motion.c** | Contains the code for motion control. | Robot |
| **cleaner.m** | Contains matlab code for Image processing | PC. |
| **cleaner.c** | Contains c code | Robot |
|  |  |  |

**Deliverables**

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

**Execution Instructions**

* Open project in AVR Studio and build it.
* Connect the PC and robot through AVR Programmer
* Write the program to flash memory. (Tools > Program AVR > Connect & then Write.
* Open the cleaner.m file in matlab and execute it (F5)