**Final Project Proposal (EE4735)**

**Project Title: Hallway Navi Bot**

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***Hallway Navi Bot***

**Objective:**

* To design a robot to complete a circuit on the 8th floor of the EERC building while avoiding obstacles using ultrasonic sensors.

**Hardware Scope:**

* *Sensors* : 3 ultrasonic sensors as guidance sensors for navigation.
* *Control System* : 4-Wheel Mobile Robot/Chassis, Sabertooth Motor Controller, MSP430 microcontroller, battery pack and a voltage translator to be used to drive the system.

**Software Scope:**

* The speed of the motors depend on the input from the pingers. The motor speed is reduced when the obstacle is close.
* The left and front sensors will be used to navigate the hallway
* The right sensor is mainly for stopping the robot
* The motor speed will be set using a scaling formula using the sensor inputs.
* The bot will follow a left hand rule for the navigation

**Hardware needed from MTU lab inventories :**

|  |  |  |
| --- | --- | --- |
| **No.** | **Hardware Name** | **Quantity** |
| 1 | eZ430-RF2500T target card | 1 |
| 2 | USB interface card | 1 |
| 3 | Battery case and adapter | 1 |
| 4 | 4-Wheel Mobile Robot/Chassis | 1 |
| 5 | Ultrasonic sensors | 3 |
| 6 | Voltage Level Translator | 1 |
| 7 | Sabertooth 2x10 Motor Controller | 1 |
| 8 | Resistors | ­TBD |
| 9 | Connecting Wires/ Jumpers | TBD |
| 10 | Soldering Iron | 1 |
| 11 | Solder | TBD |
| 12 | Circuit board | 3 |

**Hardware provided by us:**

|  |  |  |
| --- | --- | --- |
| **No.** | **Hardware Name** | **Quantity** |
| 1 | Breadboard | 1 No. |

**Queries/Ambiguities :**

1. Obstacle shapes?
2. obstacles near corners?
3. What are the things we should be careful about from the beginning of the project?