Aberystwyth Robotics Club

Project Information

Black Bot

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V0.1 / Draft

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About The Robot

Black Bot is a commercial chassis from the company DF Robotics.
The robot includes 4 motors (two on each side), both motors on each side are connected together into the motor controller. A H-Bridge acts as the motor controller for this robot.
Two ultrasonics are used at the front of the robot to detect obstacles, along with an infrared on each side between the wheels for width measurement e.g. corridor following.
A ESP wifi chip is on the fron of the robot. This allows control from a web page, this also controls the LCD screen on the lid of the robot.

Pin Layout

Component	Arduino Pin
Motor – Left Forwards	5
Motor – Left Reverse	9
Motor – Right Forwards	6
Motor – Right Reverse	10
Left Infrared	A0
Right Infrared	A1
Left Ultrasonic Trigger	A3
Left Ultrasonic Echo	A2
Right Ultrasonic Trigger	2
Right Ultrasonic Echo	3
Esp8266 RX	8
Esp8266 TX	11
BT RX	13
BT TX	12
Switch One	7
Switch two	4

Design Brief

I would like this robot to avoid obstacles and to follow the centre of a corridor, these must be done by ultrasonics and infrared sensors. I would like to have multiple ways of controlling the robot; one being from a glove communicating via bluetooth and the other being from a web page over wifi.

Tasks

- Avoid obstacles
- Follow the centre of a corridor
- Create bluetooth live controls
- Create the glove and program to receive bend sensor values, communicate over bluetooth
- Create a web page and program the wifi chip to take send and take data. (JS?)

Document History

Version	Changed	Changed By	Date Changed
V0.1	Initial Creation	Tomos Fearn (tof7@aber.ac.uk)	25th August 2017
V1.0	Release	Tomos Fearn (tof7@aber.ac.uk)	4th October 2017