Jenny Kniss
April 2015

BT_4xRover

A 4-Wheeled, Bluetooth controlled RC Car

FEATURES & NOTES

This RC Car is remote controlled using an HC-05 Bluetooth module connected to an Android phone.

The HC-05 module is attached to the main (top) circuit board, communicating between the BT_4xRover's Arduino Pro Mini UART and an Android phone running the SensoDuino Android App. The App reads and transmits the phones Accelerometer data which is then parsed and used to control the BT_4xRover's heading (lf/rt), direction (fwd/rev) and speed.

Because the Arduino Pro Mini has 8 analog outputs, but only 6 of those can be used with a digital read, the navigation is not based on the encoders. Some modification would be required if PID control or additional fine-tuning is desired.

Schematic and Eagle board files are included here. I did not get the boards printed in time so the circuits in any images included here are manually soldered and split into 3 parts: 1 part for each h-bridge, 2 motors, and their encoders and one main/top part for the bluetooth, switches, GND, VCC, and Arduino.)

FILES

BT_4xRover_EagleFiles	(Eagle Board and Schematic)
BT_4xRover_SolidWorksFiles	(SolidWorks parts and full assembly file)
BT_4xRover_Code	(Software)
2 Images, one of the top and the under carriage of the BT_4xRover	
COPYING	(License Info)

A video of the BT_4xRover completing a test course/demonstration can be viewed at:

https://drive.google.com/file/d/0B9k3eDZYhuLoRUtQbXJCNnFkb2M/view?usp=sharing

PARTS

Purchased:

DC Motor and wheel combo (x4)
9-Volt Motor power supply (x2)
SN754410 H-Bridge (x2)
1" perf-board for circuit (x1)
small DPDT switch (x1)
Rotary Encoders (x2)
Arduino Pro Mini (x1)
LM7805 Power Regulator for mini (x1)
9-Volt power supply for Mini (x1)
small SPST switch (x1)
Misc posts, screws and wires

3D Printed:
Rotary encoder to Motor shaft hubs (x4)
Chassis (x1)
Motor side mounts (x4)
Motor rear mounts (x4)
Encoder mounts (x4)

LICENSE INFO

See the COPYING file included with this project for the license details.

****