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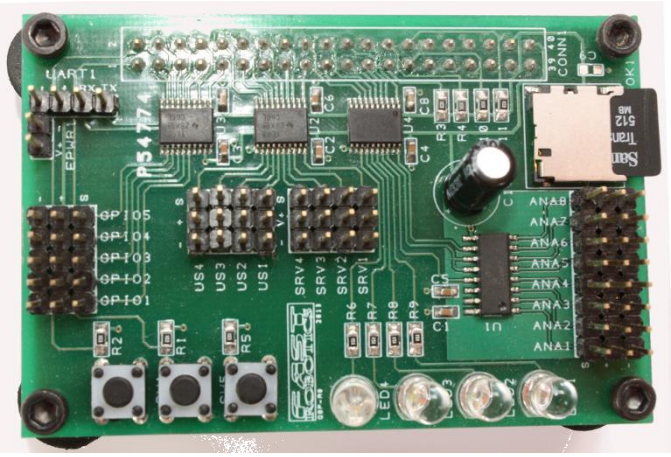
Robot Shield (#810001) Hookup Guide



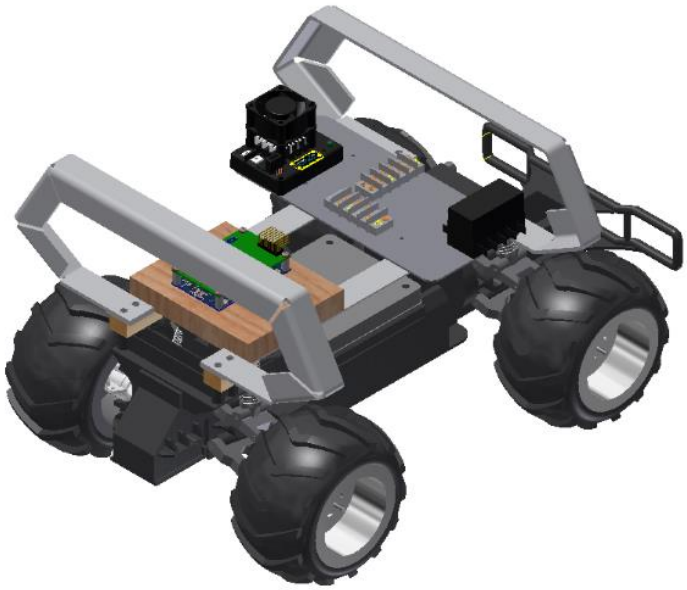
Key Features

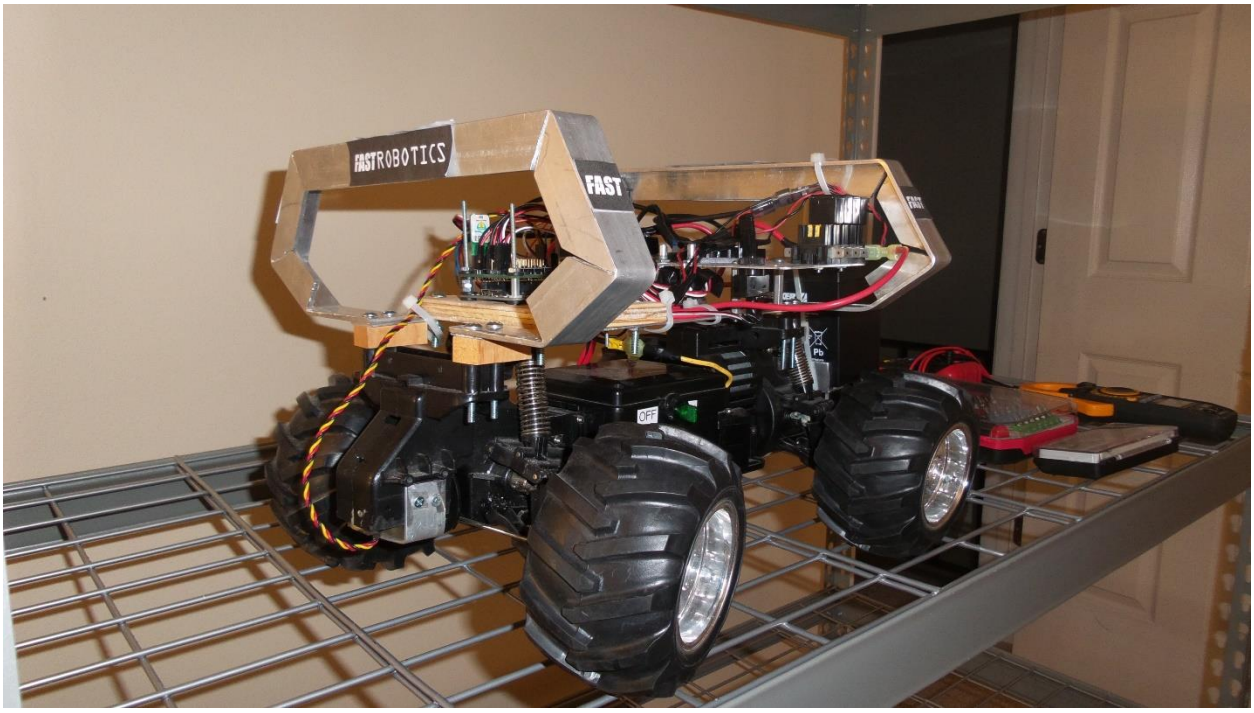
- 8 Analog Inputs
- 9 GPIO
- 4 LED's
- MicroSD Card Slot
- 2 User Switches
- UART Interface (FTDI compatible)
- Reset Switch
- 5V Power Input
- Servo Power Input

Overview

To provide a good example of how to use the FAST Robotics Robot Shield, we have created a Demo Robot that uses the Robot Shield along with a Parallax Quickstart on a 4 wheel drive Robot Chassis driven by one DC motor and one steering servo. The Rover is a slightly modified Radioshack Hummer H2 60-195 (Discontinued). The main modification to the Rover was removing the OEM steering motor and installing a Futaba High-Torque Servo, along with installing some better mounting points to the chassis.

NOTE: For this Guide, we are not providing instructions to use a wireless option. The FAST Robotics Robot Shield is completely compatible with most serial Radio products, we are just saving that guide for our next project, the Radio Shield! As such, please ensure that when you are driving your most fearsome robot around that the USB cable you have connected to it doesn't interfere with the wheels, robot suspension, pets, feral animals, small children, etc.





Components Required

1. Rover Chassis w/ 1 DC Motor and 1 Servo
2. Parallax Quickstart (#811000)
3. FAST Robotics Robot Shield (#810001)
4. Shield Hardware Kit (#810501)
5. IFI Victor 884 Speed Controller
6. Parallax Prop-Plug
7. 6V 5A DC-DC Regulator
8. 5V 5A DC-DC Regulator
9. 2x Toggle Switches
10. 1 USB to USB-Mini Cable
11. Assorted Power and PWM Cables

Software Required

1. Parallax Propeller Tool
2. Robot Shield Demo
3. Rover GUI

Documents Required

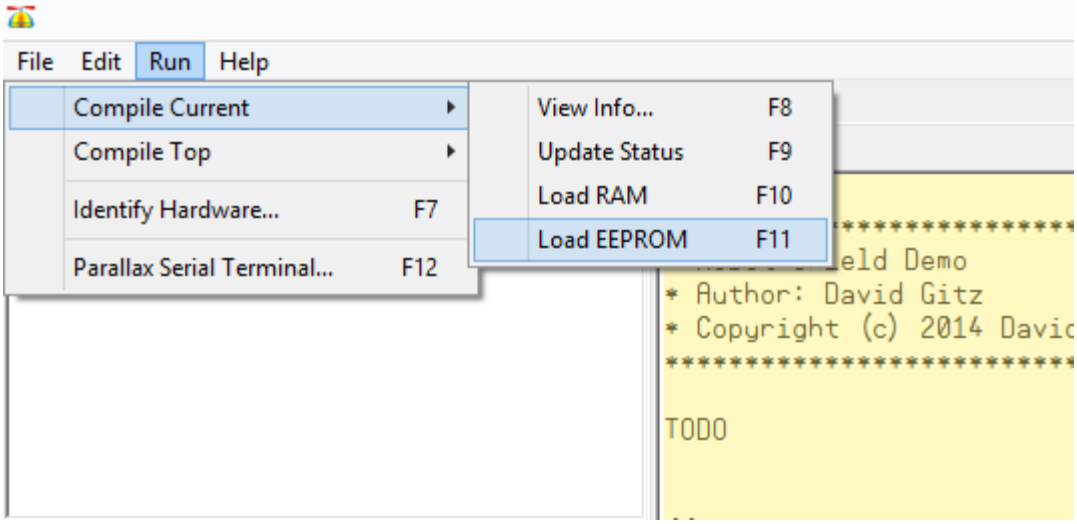
1. Robot Shield Datasheet
2. Hookup Diagram – Power and Data
3. Robot Shield Schematic

Install Components & Connections

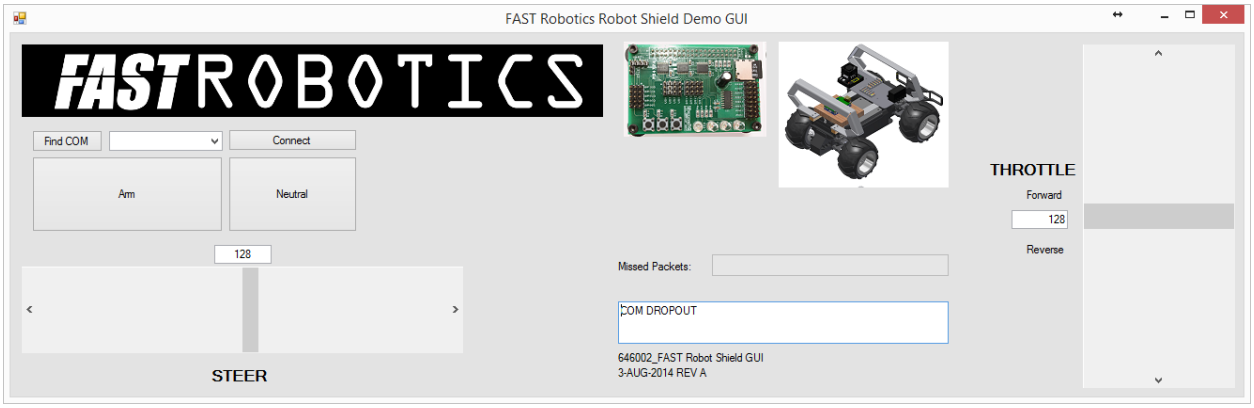
After installing all components, wire them according to the Power and Data Diagrams.

For any Digital Inputs to the Robot Shield you will need a Pull-Up Resistor. All 12V, 5V and 6V wires use 12AWG stranded wire.

After wiring all the components it's time to program the Quickstart. After installing the Parallax Propeller Tool download the Robot Shield Demo code, unzip it, open the Main.spin file in the Propeller Tool program and click "Run"->"Compile Current"->"Load EEPROM".



Now find the Rover GUI executable "FAST Rover GUI.exe" and run it.



Now all you have to do is connect your USB cable to the Prop-Plug and connect that to UART1 on the Robot Shield. Turn on power and hit "Find COM", then click Connect.

You will need to turn on the Arm Switch on the Robot and then you can hit the Arm button in the GUI. Now move the STEER and THROTTLE sliders around and your beast should move!

Further Steps

So what's next? You could add an ultrasonic sensor on a pan servo for autonomous movement. Or you could add a robot arm and help pick up trash in your neighborhood.

You could even just drive the robot around your dog until she gets tired of chasing it. The choice is yours!