Roboxsumo RC Controls installation and use – R2 052516

Standard Parts list from the components list

Table 7 – Wireless Control Parts (4 Channel) *		
Part	Qnty.	Source
CAT5E Female connector	1	Lowes - 248282 (5 pack)
Electronic Perfboard	1	Digikey - V1042ND or equivalent
2.1 mm DC power jack	1	Jameco - 101178
Tactic TTX410 RC	1	Servo City - TACJ2410
Sabertooth 2x12 R/C controller	2	Dimension Engineering

Creates a 4 channel – Wireless control system.

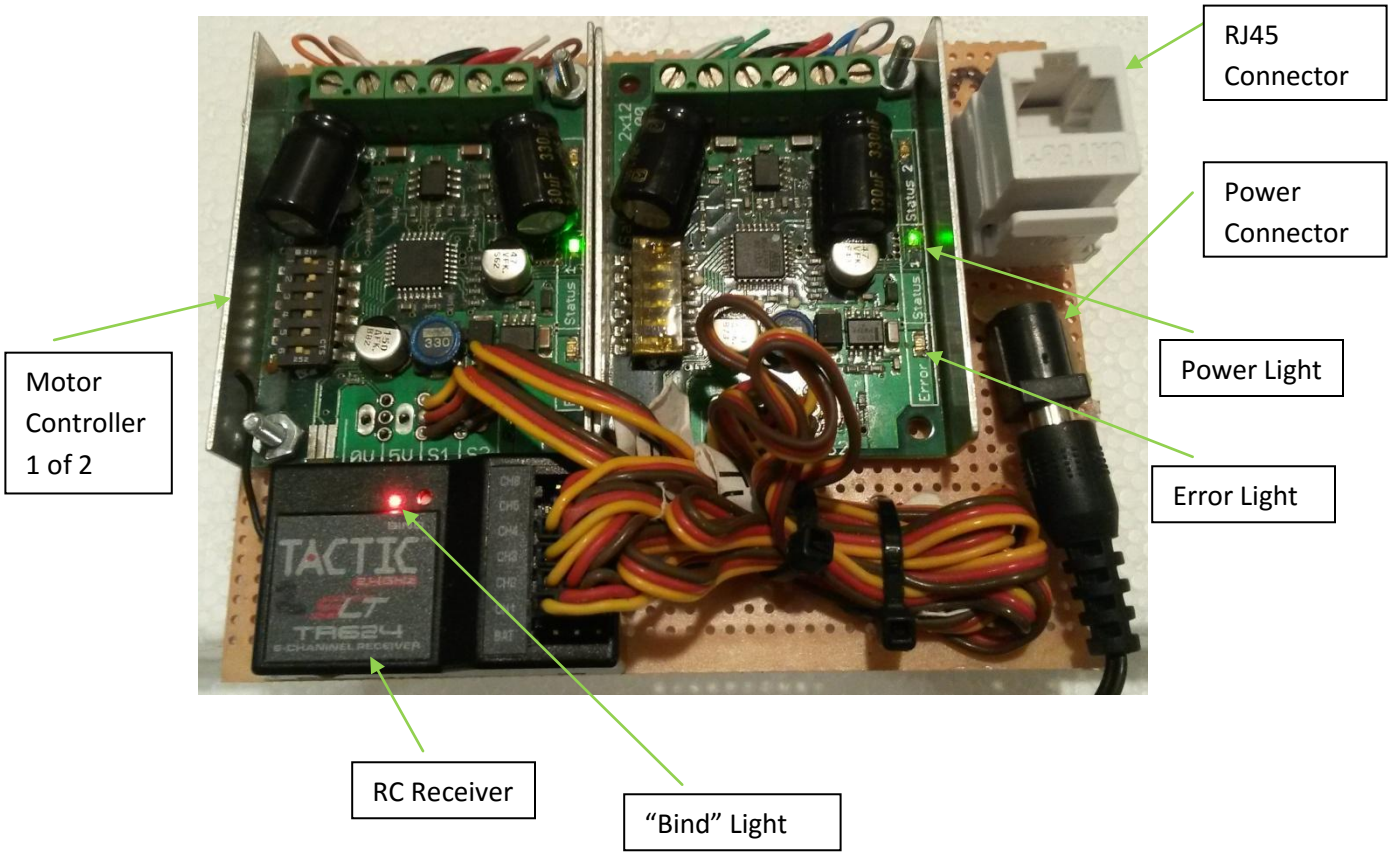
The Robox Sumo control uses a standard 2.4Ghz hobby remote control system with two, motor drivers attached. The motor controller uses 6 AA batteries to drive the motors and power the RC receiver. The AA batteries should last for many sessions. We routinely run these batteries for 20 or 30 sumo bouts before changing. The RC transmitter also uses four AA batteries and should last for a very long time.

RC Controller Details and Features

Note: All colors refer to the wires going to the motors.

The right control stick will operate the blue and green motors together (like an RC car). The left stick will operate the orange and brown motors (on the aux connectors). The green and blue are set to operate together and pushing the stick forward will make both motors go forward. Green is a right hand motor and blue is a left hand motor. The orange and brown motors operate independently. Pushing the LEFT stick forward will make the brown motor go forward and back will make it go backwards. Brown is a left motor. Pushing the left stick to the right will make the orange motor go forward and to the left will make it go backwards. Orange is a right motor. It is possible to create four wheel drive vehicles, but the driver will need some skill since the two control sticks operate differently. See photo below.

There are some lights and features you should know on the receiver. There are five main components on the receiver module. They are the RC receiver, two motor controllers, the RJ45 connector and the power connector. See photo below.



As shown, the motor controller on the left operates the orange and brown motors. The right hand controller operated the blue and green motors.

Use of controller

1. Turn off power on the transmitter and receiver. Make sure the battery pack is plugged in to the receiver unit at the power connector.

2. Make sure the joysticks are centered. The control will assume the starting position of the sticks is "zero" on startup. If a joystick is not centered, the controller will assume that is the zero position. Remember, the left joystick DOES NOT spring return to center. You will need to place it there.

3. Plug the RJ45 cable on the roboxsumo in to the receiver RJ45 connector. It plugs in just like a normal LAN cable. Remember to press down the catch to release the cable when you want to unplug the cable.

4. Turn on the transmitter FIRST. It should beep and the red power light should come on. If it beeps, but the light does not come on, the batteries may be getting low in the transmitter.

5. Turn on the small switch on the battery pack to the "on" position. Green lights should illuminate on the two motor controllers (flashing) and a small red light (the "Bind" light) should illuminate on the RC receiver.

6. Test your controls. The right stick will make the blue and green motors go and the left stick will make the brown and orange motors operate.

NOTES:

a. Between matches, do not turn off the controls. Simply unplug one robot and plug in the next. The controller uses very little power when not operating motors and it is easiest to simply leave the controller running between matches.

b. If you power up the receiver BEFORE you turn on the transmitter, the motors may begin to move on their own. DON'T Panic. If the RC unit is not receiving signals from the transmitter, it will send false signals to the motors. Simply turn on the RC transmitter and this should stop.

c. There are red "error" lights on the two motor controllers. Sometimes you will see these flash if the students are driving hard. If the robox will not go and the red lights flash each time you send a control signal, it usually indicates that batteries are getting low in the receiver.

d. Sometimes the motors will "creep." That is move slowly in one direction when the stick is centered. There are adjustment sliders on the sides of each stick. Normally, there is no need to adjust the controls. Sometimes students press these by accident. Each time you push these sliders there will be a soft "beep." If a motor is creeping, press the slider in the opposite direction till it stops. Green and blue are controlled on the right. Brown and orange are on the left stick. It may take some experimentation to get the motor to stop.

e. Transmitters and receivers have unique markings to keep them together. Each transmitter and receiver pair will ONLY communicate with itself. This allows multiple controllers to be used in the same place at the same time. Receivers and transmitters will be marked. Typically a letter and a number .. IE "A1 ."

f. Rechargable batteries work very well in this application. The batteries in the transmitter do not need to be changed very often and may not need to replaced for weeks or months. The batteries in the receiver will need to be charged after any full sumo competition. The controllers are not usually shipped with rechargeable batteries but they are a sound investment if the unit will be used frequently.

Questions/Problems?

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