AL5 Programming Tutorial - PS2 RC Rev. 1.

Updated 01/11/2012

Safety first! Wear eye protection and never touch a powered robot!

The purpose of this guide is to set up the robot arm to be controlled via a Playstation 2 game controller.

Note, the PS2 control programs have been verified to work with Lynxmotion wireless controllers. We cannot guarantee that non-Lynxmotion controllers will work.

Image of arm.

What you'll need to get started:

- Any of our AL5 arms
- BotBoarduino
- PS2 Controller

Step 1.
Install the BotBoarduino as shown in Figure 1. Wire the board as shown in the schematic and table below. Make sure the jumpers are all correct.

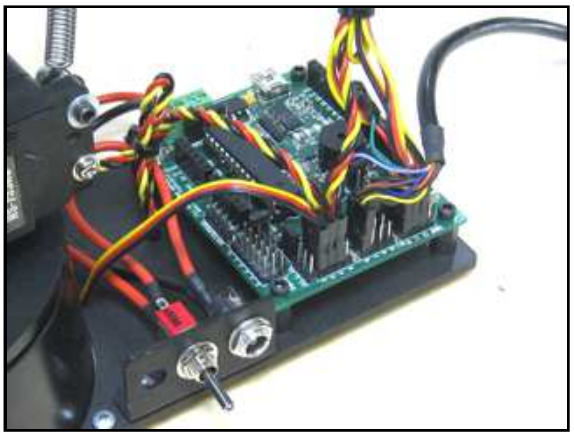


Figure 1.

BotBoarduino Jumpers	
Connect	6.0vdc battery or wall pack to VS
Connect	9.0vdc battery to VL
Enable	Speaker
Connect	I/O 0-3 Power Bus to VS
Connect	I/O 4-7 Power Bus to VS
Connect	I/O 12-15 Power Bus to 5V

BotBoarduino Connections			
P1	N/A	P8	PS2 Select
P2	Base	P9	PS2 Clock

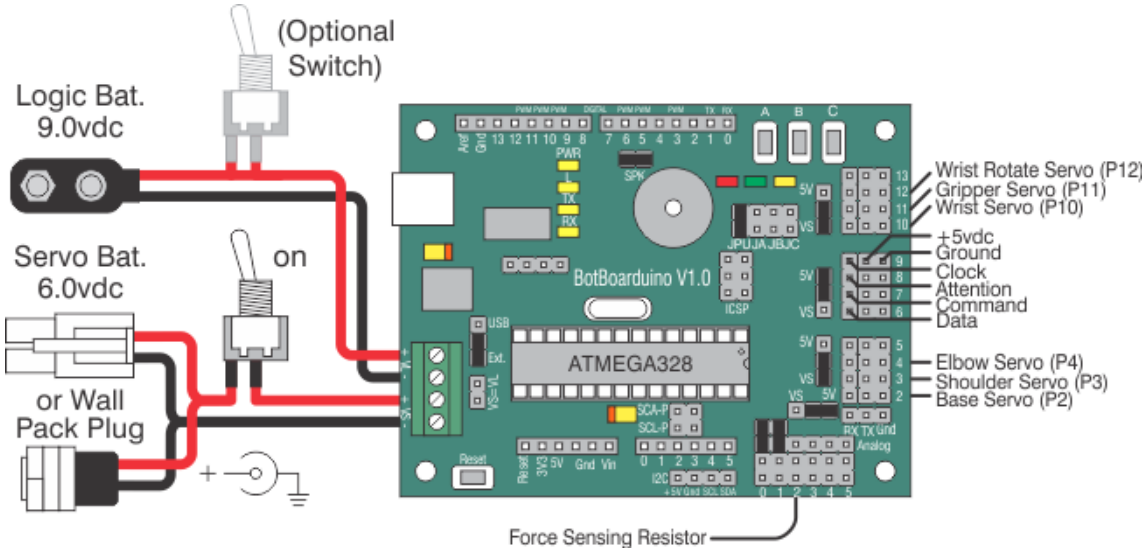
Step 2.
Configure the BotBoarduino as illustrated in Table 2. For more information about setting up the force sensing resistor, look here.

P3	Shoulder	P10	Wrist
P4	Elbow	P11	Gripper
P5	Speaker	P12	Wrist Rotate
P6	PS2 Data	P13	N/A
P7	PS2 Command	A2	Force Sensing Resistor

Table 2.

Schematic.
Double check your connections against the schematic below.

Note: You can check your PS2 cable's colors and the functions they represent here.



Schematic.

Step 3.
Download and install the Arduino Software. You will need to install the PS2X library. You can find instructions on installing the library here. Download the code for the arm here.

Open the .ino file in the IDE and locate the section of code to the right located near the top of the file. Remove the comments (double forward slash) from in front of the arm you are using. For example, if you are using an AL5D, the text should look like Table 3. The code is set to default to the AL5D arm. If you use another arm, be sure to add a comment before the AL5D line.

Arm Selection in Program

`//comment to disable the Force Sensitive Resister on the gripper`
`//#define FSRG`
 	
`//Select which arm by uncommenting the corresponding line`
`//#define AL5A`
`//#define AL5B`
`#define AL5D`

Table 3

If you are using a FSR on the gripper, be sure to uncomment the line "#define FSRG".

When you are finished, save your program and

click "Program."

Step 4.
Consult Table 4 for information on controlling the arm.

PS2 Controls			
L Joy U	Gripper Angle Up	R Joy U	Gripper Up
L Joy D	Gripper Angle Down	R Joy D	Gripper Down
L Joy L	Base Rotate Left	R Joy L	Gripper Back
L Joy R	Base Rotate Right	R Joy R	Gripper Away
L1	Wrist Rotate CW	R1	Gripper Close
L2	Wrist Rotate CCW	R2	Gripper Open
L3	N/A	R3	N/A
D-Pad U	Increase Speed	Tri	Center Wrist Rotate
D-Pad D	Decrease Speed	X	Fully Open Gripper
D-Pad L	N/A	Squ	N/A
D-Pad R	N/A	O	N/A
Start	Enable/Disable Arm	Select	N/A

Table 4