

# Appendix A: Hardware Connections

November 3, 2015

## **1 Mobile Robot**

### **1.1 Power Board**

The following tables are the pin connectors located on the power board. Connectors X2, X3 and X5 are connected internally to the Pololu Hbridge motor driver circuit, and all inputs to the motor drivers are instead connected to the power board.

### **1.2 PIC pin Connections**

Pin	Signal
1	+11 V to +20.0 V Input
2	+0.0 V Ground

Table 1: Connector X1

Pin	Signal
1	+5 V Supply to Encoder 2
2	Encoder 2 A Output
3	Encoder 2 B Output
4	+0.0 V Ground

Table 3: Encoder 2 Connector X6

Pin	Signal
1	+12 V to +30 V input
2	+0.0 V Ground

Table 5: External Power Connector X8

Pin	Signal
1	Motor 1 Enable
2	Motor 1 Input A
3	Motor 1 Input B
4	Motor 1 PWM Input
5	(no signal)
6	Encoder 1 A Output
7	Encoder 1 B Output

Table 7: Connector P2

Pin	Signal
1	Motor 2 Enable
2	Motor 2 Input A
3	Motor 2 Input B
4	Motor 2 PWM Input
5	(no signal)
6	Encoder 2 A Output
7	Encoder 2 B Output

Table 9: Connector P4

Pin	Signal
1	+5 V Supply to Encoder 1
2	Encoder 1 A Output
3	Encoder 1 B Output
4	+0.0 V Ground

Table 2: Encoder 1 Connector X5

Pin	Signal
1	+ Motor Power Output
2	Motor Power Ground

Table 4: Motor driver power Connector X7

Pin	Signal
1	+0.0 V Ground
2	Battery Voltage Output
3	+0.0 V Ground

Table 6: External power Connector X9

Pin	Signal
1	Motor Driver Ve+
2	+0.0 V Ground
3	+5 V Supply Output
4	+0.0 V Ground
5	Motor Driver Ve+

Table 8: Connector P3

Pin	Signal
1	+5 V Supply Output
2	$ENABLE_{MTRPWRInput}$
3	$PWR_{SWFULLOutput}$
4	+0.0 V Ground

Table 10: Connector P5