

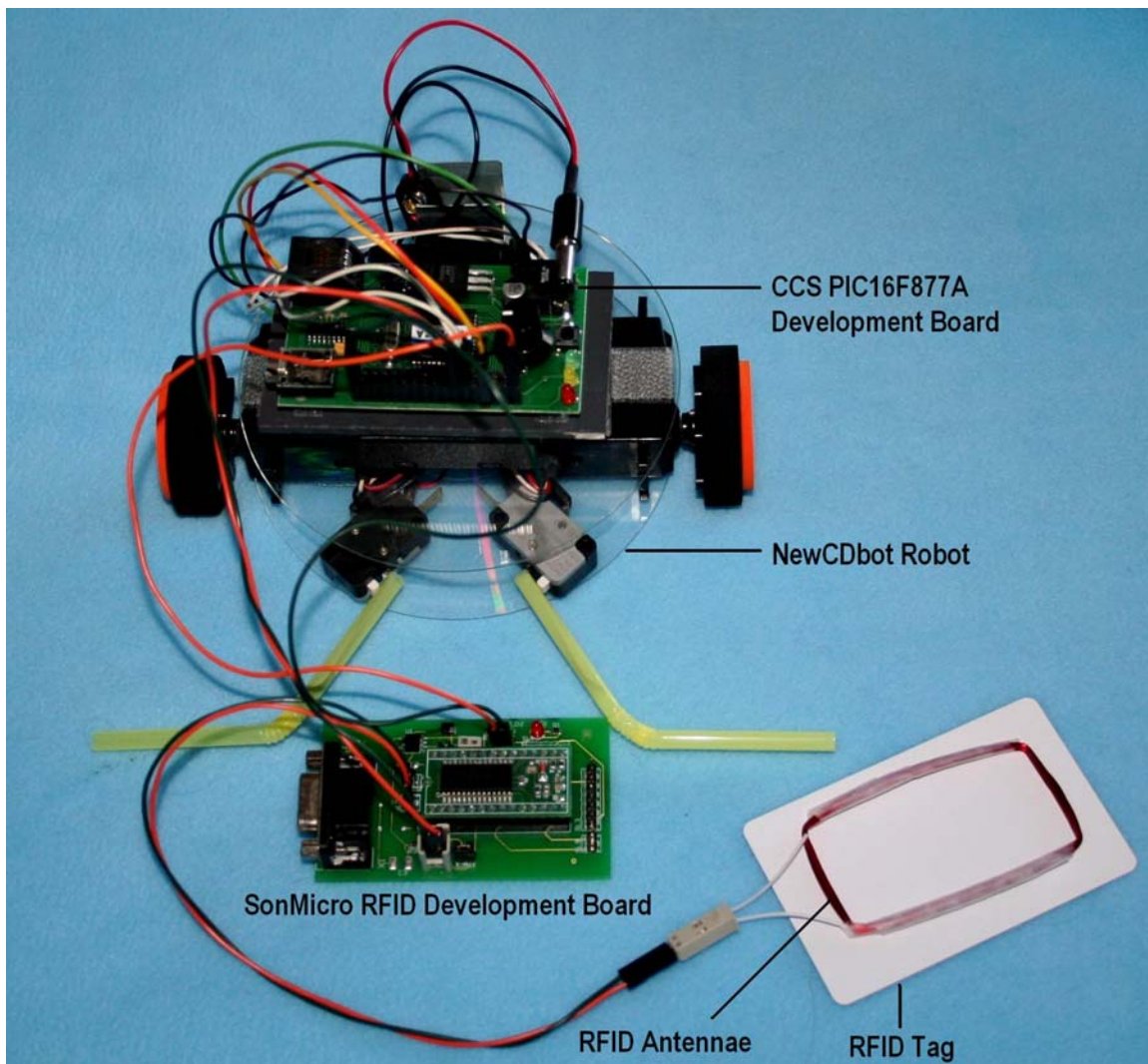
Adding RFID to a NewCDbot

By Abe Howell

Introduction:

This tutorial assumes that you have a fully functioning NewCDbot robot with a CCS PIC16F877A Development Board (<http://www.ccsinfo.com/evalkit877.shtml#16f877>) for a controller. You also need to purchase a development kit from SonMicro (www.sonmicro.com) part#SM3005-B5.

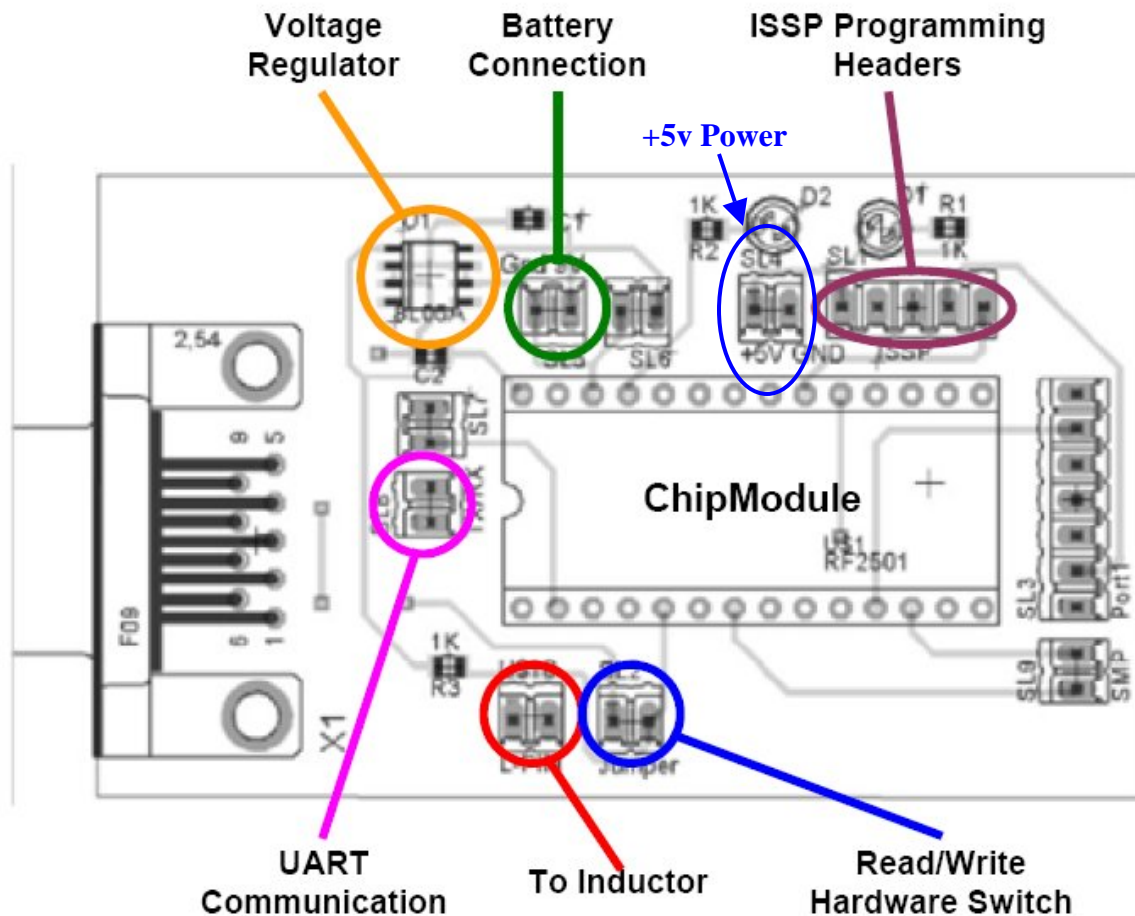
The first step is to figure out how to mount the RFID dev. Board to your robot.



Figure#1. RFID Development Board, Antennae and NewCDbot.

You can mount the RFID development board to the battery pack of the NewCDbot or you could fabricate a mount and stack it above the PIC16F877A board. The RFID antennae can be mounted on the bottom CD of the NewCDbot. At this time we leave the details up to you, but might have more pictures or instructions in the future.

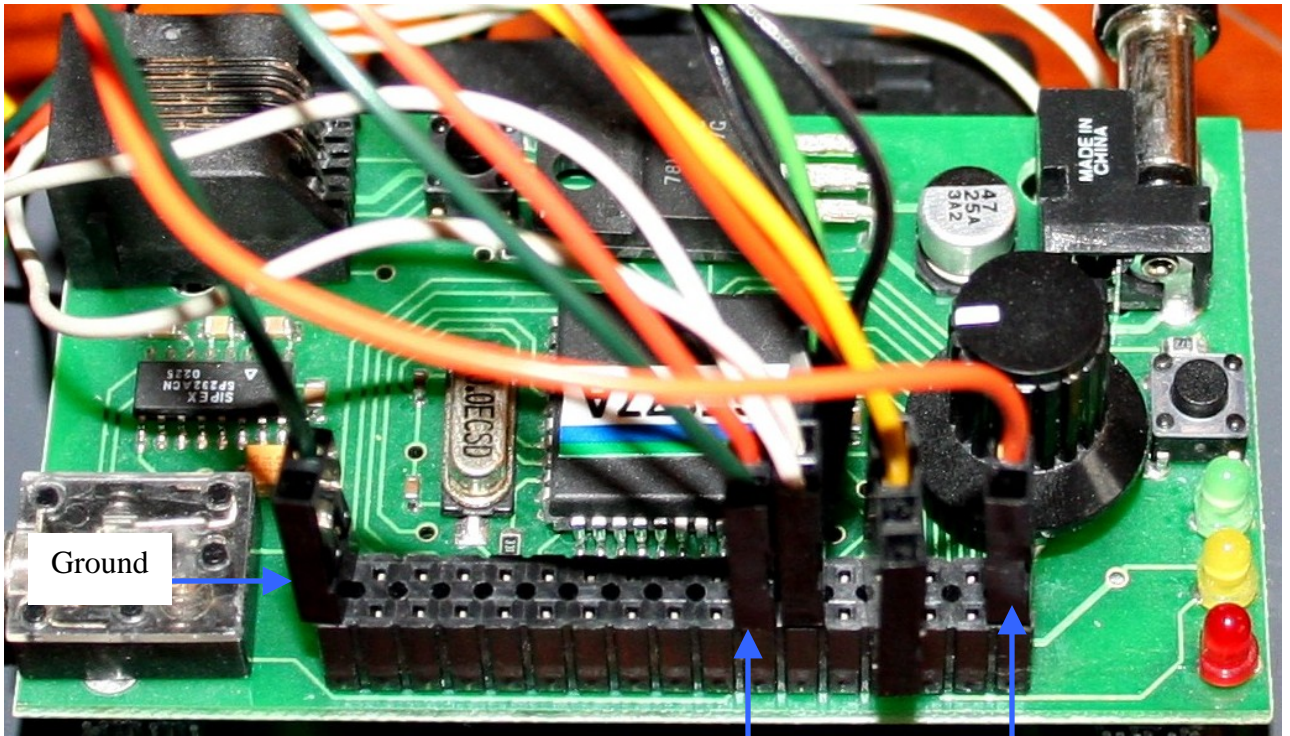
Next, we need to power the RFID dev. board, connect to the PIC16F877A's serial port and connect the antennae to the RFID dev. board.



Figure#2. Schematic of RFID Development Board.

To power the dev. board we need to fabricate a cable and connect SL4 on the dev. board to +5volts and ground on the PIC16F877A board (refer to figure#3). To fabricate a cable I suggest using the following parts and material to create this cable and the two others that will be needed. You should use 22-24 gauge wires.

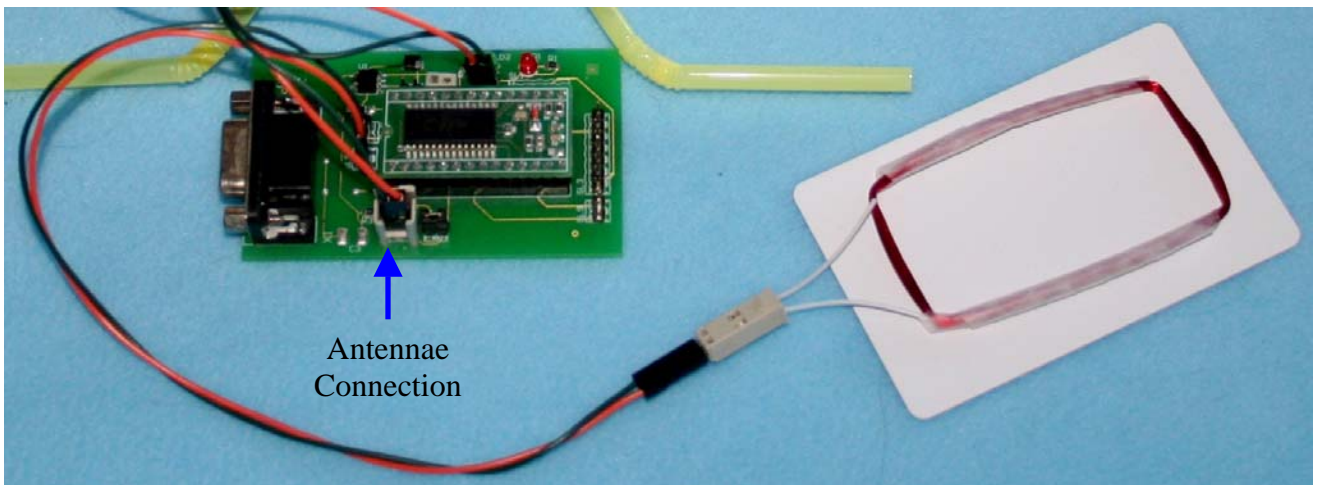
- Female crimp connectors (Jameco part#100756).
- Male crimp connectors (Jameco part#145357).
- Crimp Tool (Jameco part#99442).



Figure#3. Power RFID Board from PIC16F877A Board.

TX & RX from RFID Board
To D4 & D5 on PIC16F877A +5 volts

To connect the RFID dev. board serial port to the PIC16F877A serial port we need to fabricate a cable to connect the SL8 pins on the RFID dev. board to pinD4 (RX) and pinD5 (TX) on the PIC16F877A. More specifically, the SL8 TX pin on the RFID dev. board must connect to pinD4 (RX) on the PIC16F877A and SL8 RX pin must go to pinD5 (TX) on the PIC16F877A.



Figure#4. Connect RFID Antennae to Dev. Board.

Finally, we need to connect the antennae to the dev. board. To do this simply fabricate a cable and plug it into the antennae and then connect the other end to the U\$18 pins on the dev. board (refer to figure#4). We needed to fabricate a cable because the antennae cable is not long enough. Be very careful when handling the antennae, as they are very fragile and susceptible to damage.

In a future tutorial I will explain how to program the PIC16F877A to read and write data to in range tags. Please send comments/questions to abe@abotics.com