RFID Dual Head Reader Installation

This is a PRELIMINARY installation instruction set for the RFID Dual Head Reader Installation. Please address any questions or corrections to seth@modelrailroadcontrolsystems.com.
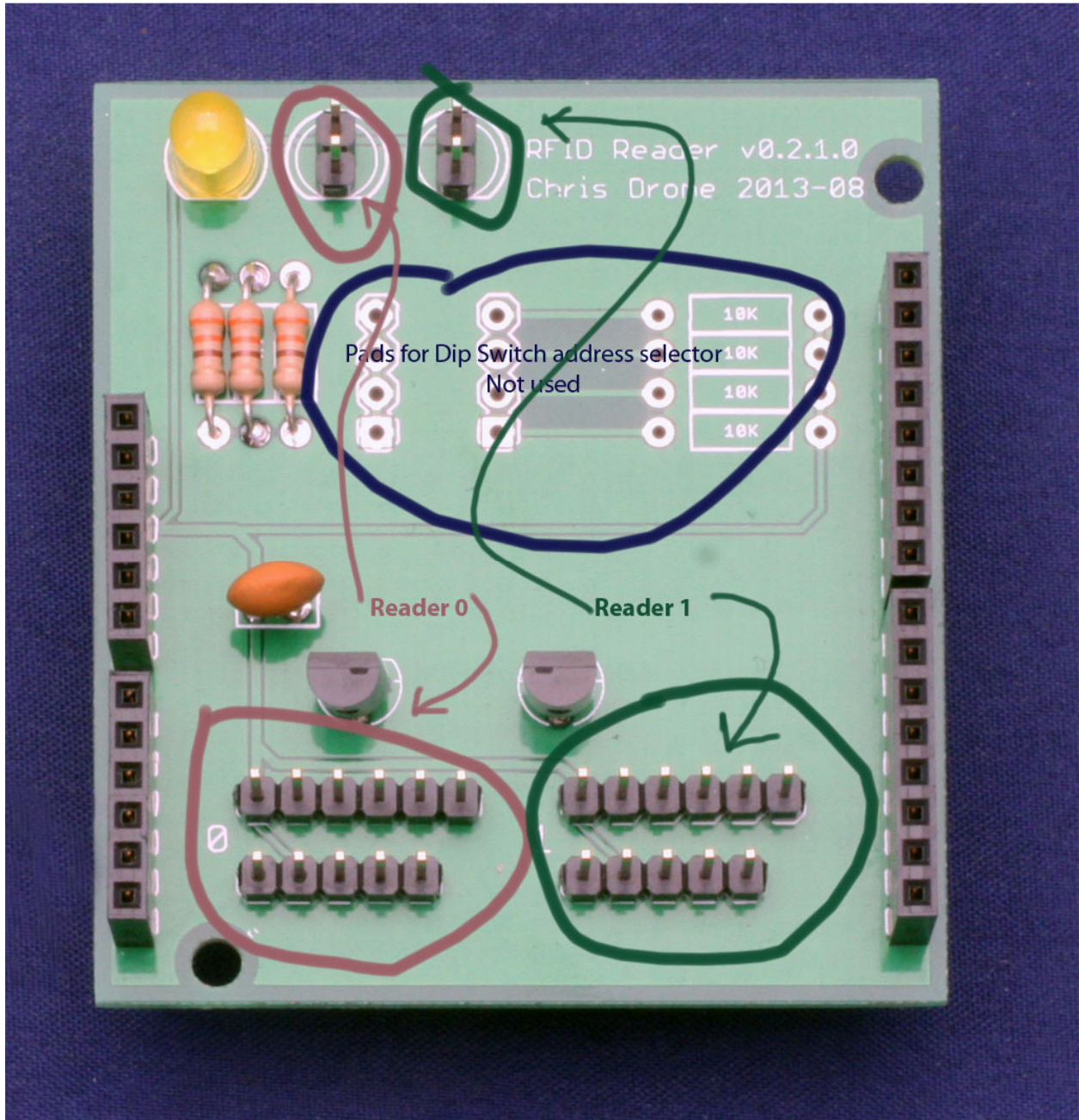

Figure 1- Dual Head Reader with Call Outs

Identification:

The Dual head RFID Shield is an Arduino Uno/Leonardo form factor "shield" that supports one or two Innovations ID12-LA readers and provides break outs for "read" LEDs. The ID12-LA reads 125KHz EM4100 chips. This part was featured in the RFID article in the December 2014 Model Railroader by Seth Neumann and Chris Drome. This shield is intended for use with the RFID server. We will offer a sketch for use with your own RFID applications, but it is not a complete application by itself. See Chris and Seth's clinic from the 2013 NMRA convention in Atlanta.

 The ID12-LA and interface connectors are not included, You must supply:

- an ID12-LA reader
- a 5 pin 0.100 jumper of suitable length
- a 6 pin 0.100 jumper of suitable length
- a 2 pin 0.100 jumper of suitable length (for the LED if desired)
- an ID12LA - 0.100 break out board
- Arduino Uno R3
- 0.100 male headers (available from MRCS)
- Ethernet Shield for Arduino
- Power Supply for Arduino

All of these are available from SparkFun Electronics
https://www.sparkfun.com/products/11827

The whole assembly draws 25mA from an Arduino Power Supply connected to the Uno in the stack.

Installation:

The Dual Head RFID Reader shield is intended to be installed at the top of the Arduino stack. In our recommended configuration (when used with our RFID server) there is an Uno, an Ethernet Shield and the Dual Head Read Shield. Power is supplied from a suitable 9V wall wart to the Uno.

Match the 5 and 6 pin cables from the board to the respective pins on the breakout board. Don't worry, if a cable is reversed it won't hurt anything, it just won't work. The 2 pin connectors are for optional "Read" LEDs that indicate a successful read.

We recommend that cables be no longer than 18" and the heads be placed a minimum of 6" apart (to avoid interference). The Rev 2.1.0 board (shown) may be shipped without a DIP switch or resistors as we now set the unit ID in the sketch.
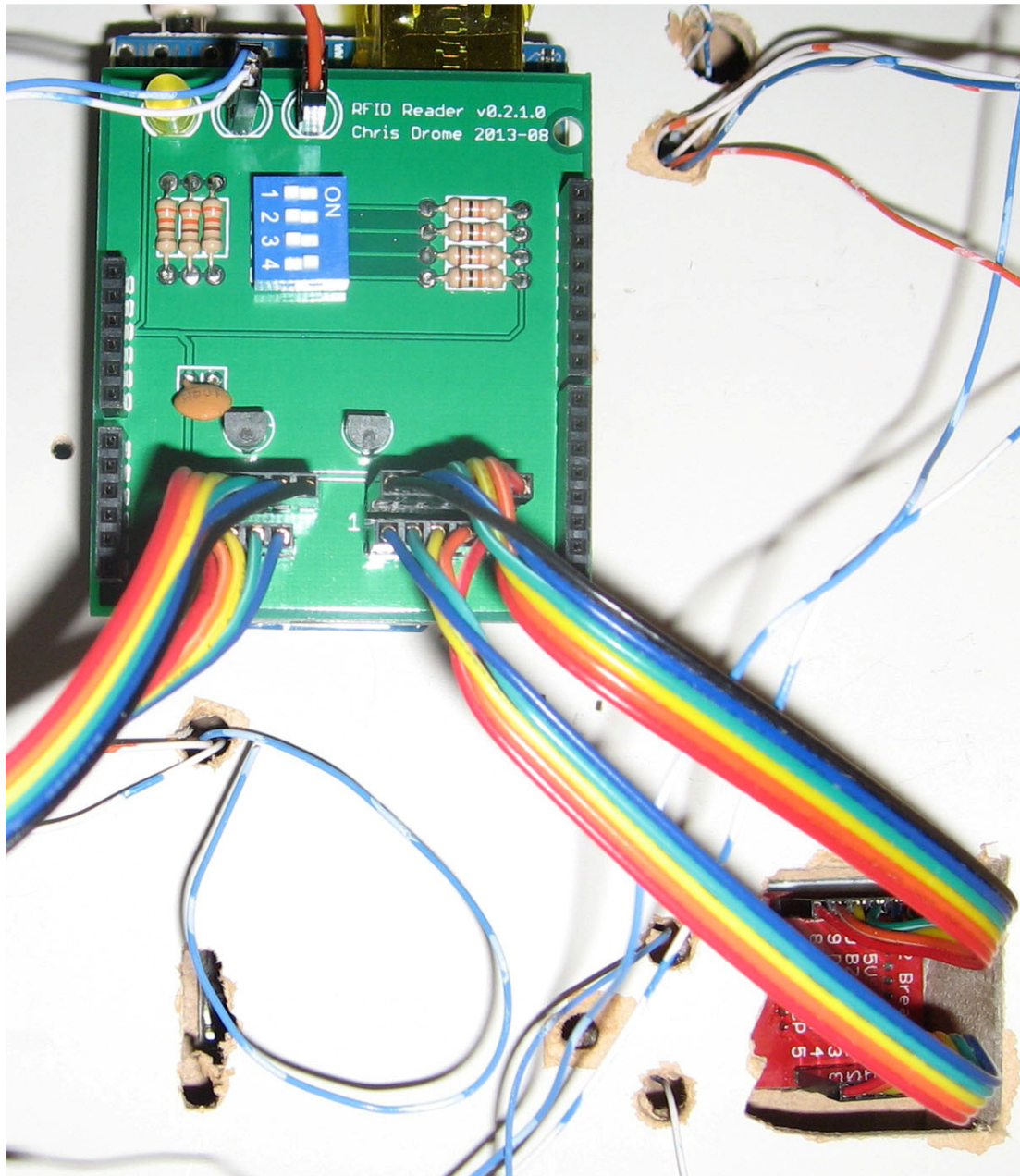

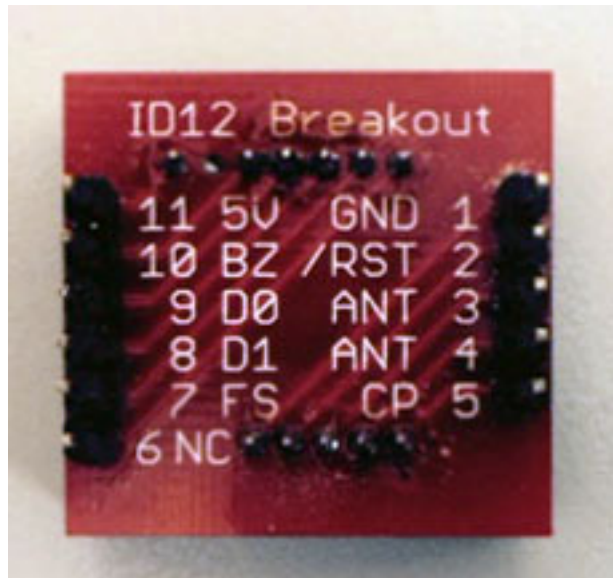**Figure 2 - Dual Head Reader Shield installed under Seth's Layout**

Figure 3 - ID12-LA on Sparkfun Break Out Board

Software:

The Free Arduino Sketch for the reader assembly will be available in 2Q15. There are two sketches (Arduino programs) for the Dual Head RFID Reader:

- A basic sketch for the experimenter showing how to configure the pins and do a basic read
- A set of Sketches to configure the Arduino stack and have it run as a client to our RFID server. These will be provided to purchasers of the RFID server.