Setting up trackball acquisition

Monday, May 04, 2015 4:44 PM

1. **Connect the sensor to the arduino**

Connections:

Chip pin	Arduino pin
MI	MISO
MO	MOSI
SS	51
SC	SCK
MOT	53
AG	GND
DG	GND
VI	3.3V

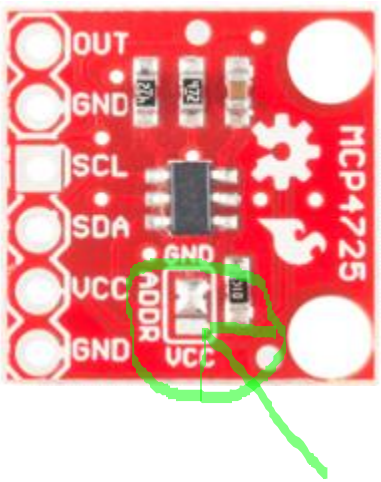
Chip label definitions:

MI = MISO
MO = MOSI
SS = Slave Select / Chip Select
SC = SPI Clock
MOT = Motion (active low interrupt line)
AG = Analog Ground (connect to common ground near power supply)
DG = Digital Ground (connect to common ground near power supply)
VI = Voltage in up to +6V

ICSP layout:

NB that on the DUE you need to use the SPI pins rather than the ICSP pins

2. Change the address of one of the DACs so that the two DACS have different addresses. You do this by moving the bit of solder highlighted here:



3. Connect DACs to arduino
   NB the two DACs can be stacked so that for example the two SCL pins are connected together and to the arduino SCL pin. This stacking applies to the SCL, SDA, VCC and GND pins. The OUT and GND pins need to be separate as each DAC will have a different output!

DAC pin	Arduino Pin
OUT	BNC signal i.e. this goes into your national instruments DAC
GND	BNC GND i.e. this goes into your national instruments DAC
SCL	SCL (pin 21)
SDA	SDA (pin 20)
VCC	5V
GND	GND

4. Upload sensorToDac code onto arduino. NB both ADNS9800_SROM_A4 and sensorToDac code need to be in a folder called sensorToDac

5. Acquire data through analog inputs in matlab

5. Process data using the processBallData code