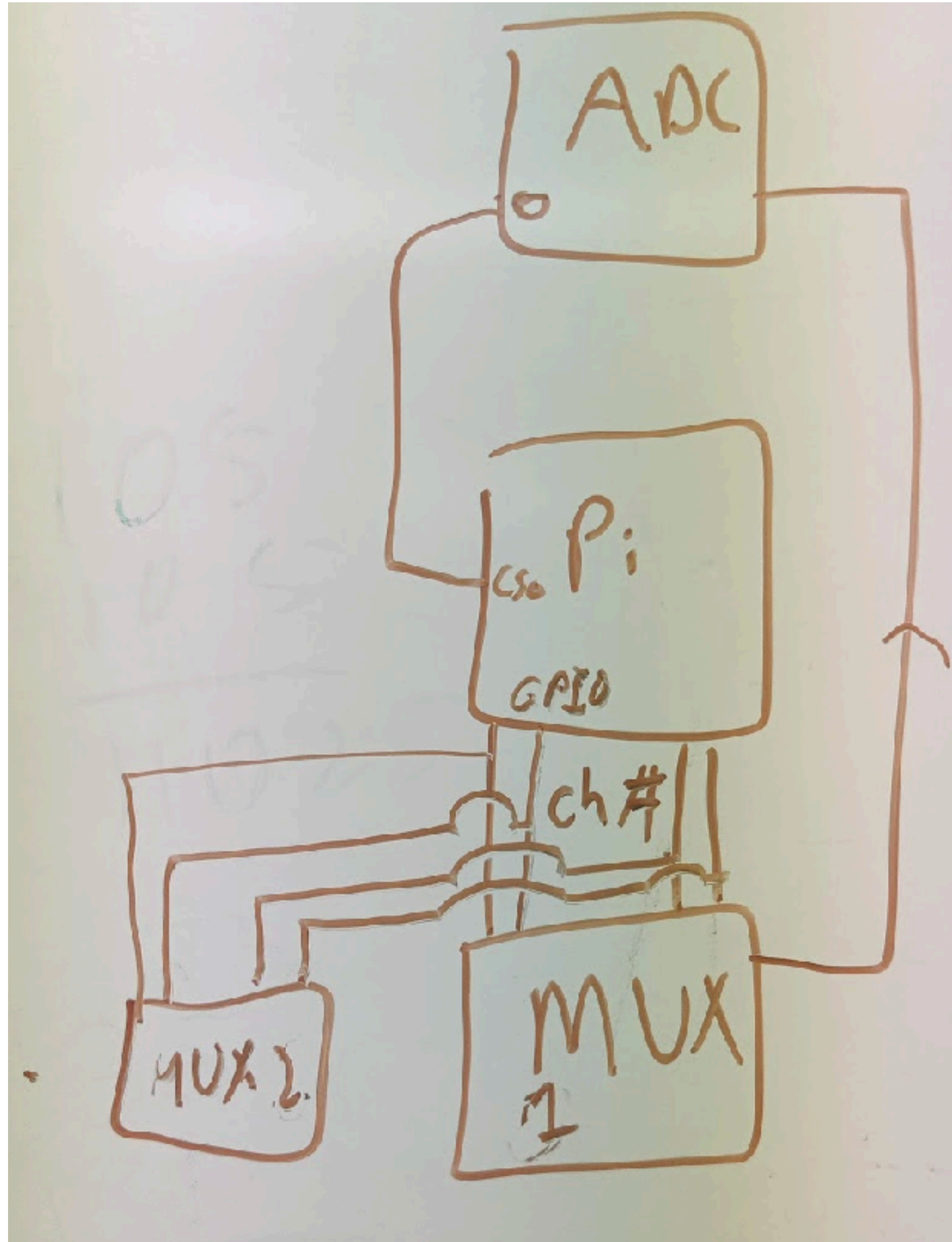# KLM Meeting

Multiplexer channel switching

Noah, Sayan and Travis, 8th May 2023

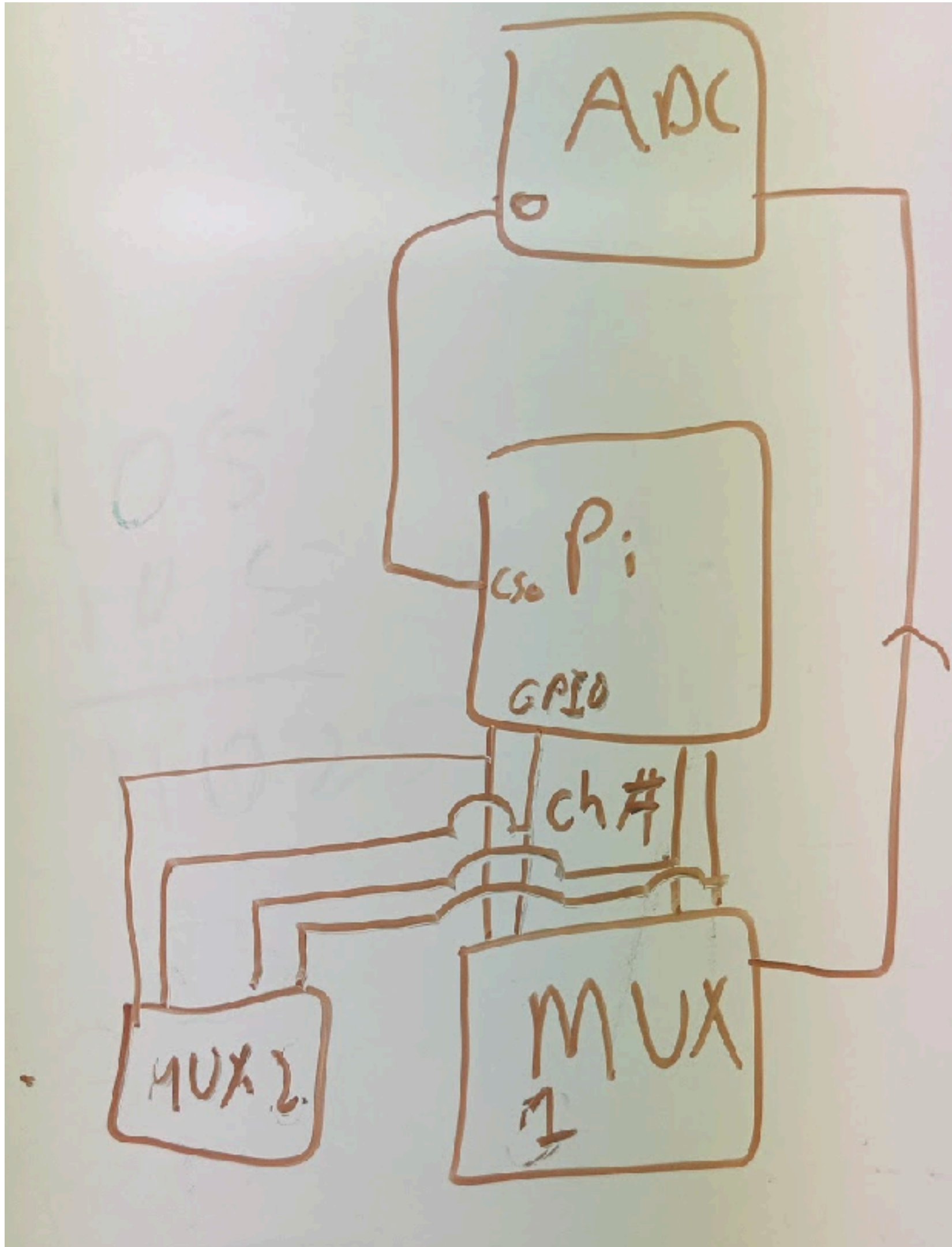# Multiplexer channel switching
Circuit (simplified)

- Send channel switch instruction from Pi to multiplexer

  - Use GPIO pins

  - Same instruction sent to all 4 multiplexers

- Wait a bit for mux to switch channel

- Read data from ADC

  - Analogue signal for channel-n -> MUX -> ADC -> Digital signal for channel-n -> Pi
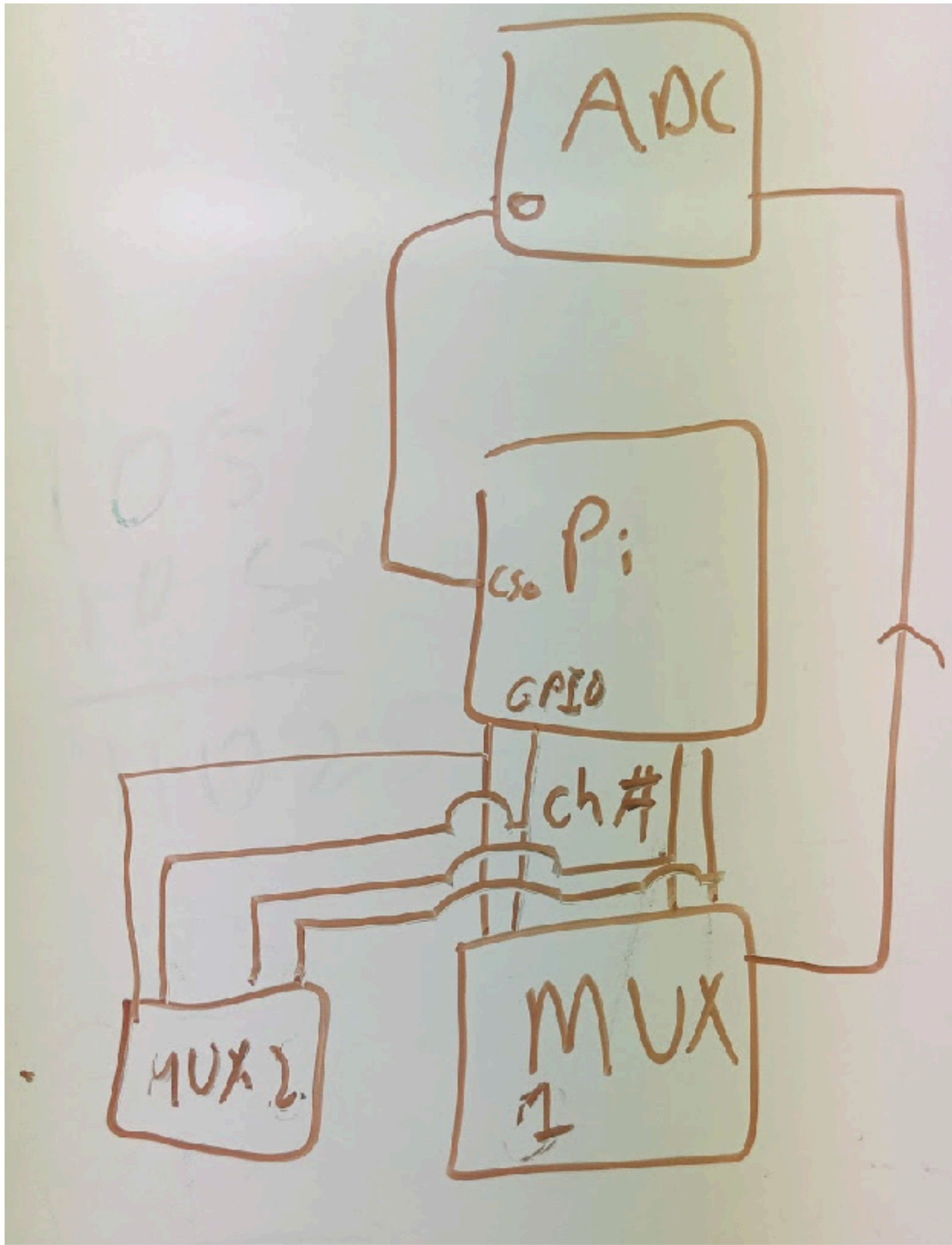
Multiplexer channel switching
Circuit (simplified)

Multiplexer channel switching

Circuit (simplified)

Mux   A0: Pi Pin 11
       A1:   Pin 13
       A2:   Pin 15
   A3:   Pin 16

Table 5. Truth Table (ADG406)

| A3	A2	A1	A0	EN	On Switch
X	X	X	X	0	None
0	0	0	0	1	1
0	0	0	1	1	2
0	0	1	0	1	3
0	0	1	1	1	4
0	1	0	0	1	5
0	1	0	1	1	6
0	1	1	0	1	7
0	1	1	1	1	8
1	0	0	0	1	9
1	0	0	1	1	10
1	0	1	0	1	11
1	0	1	1	1	12
1	1	0	0	1	13
1	1	0	1	1	14
1	1	1	0	1	15
1	1	1	1	1	16

Multiplexer channel switching
Simple test
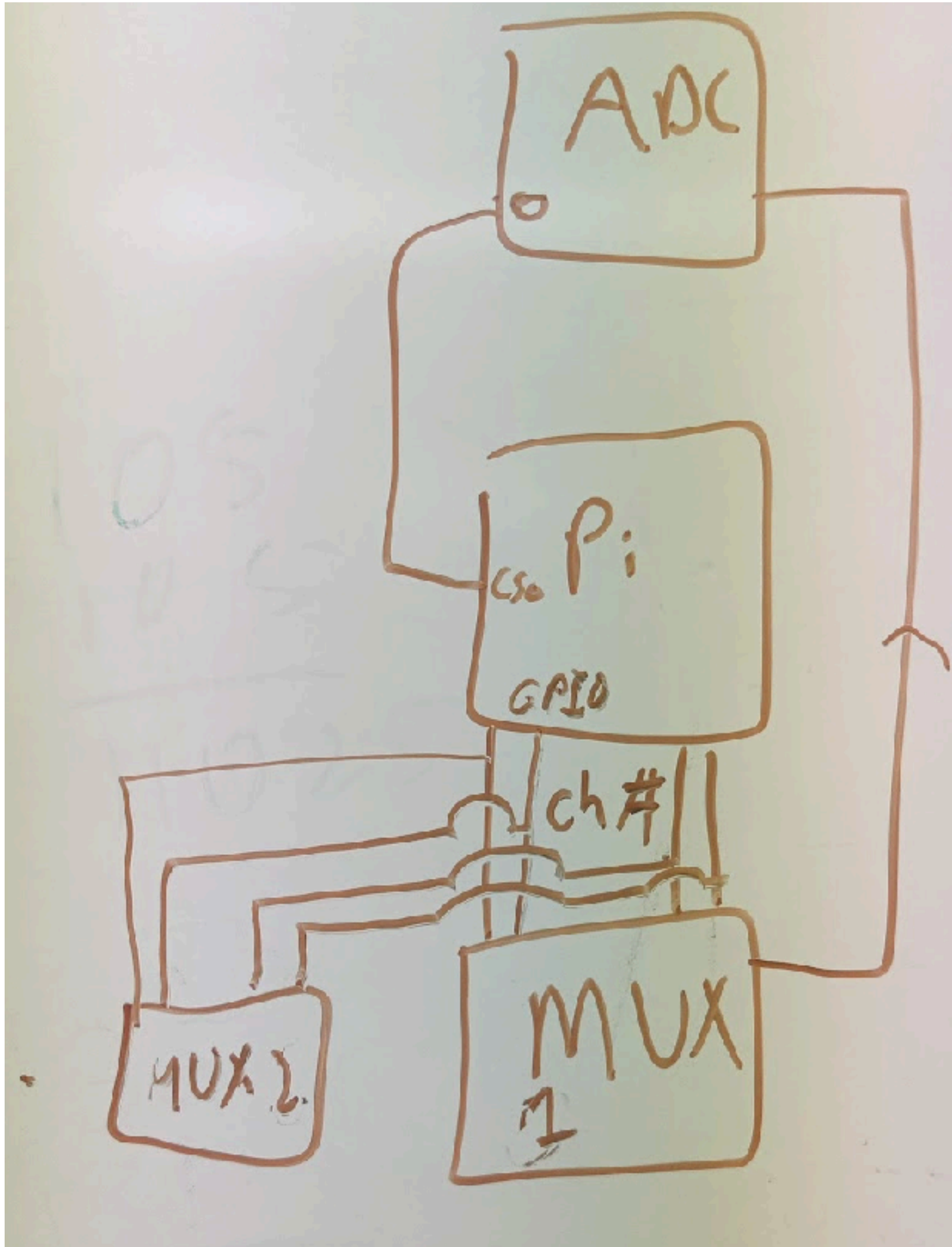
- check if all the channels on multiplexer function as expected

  - Tested for two of the mulitplexers, bottom two on board

    - passing signal to each channel and see if we can read it

KLM Meeting
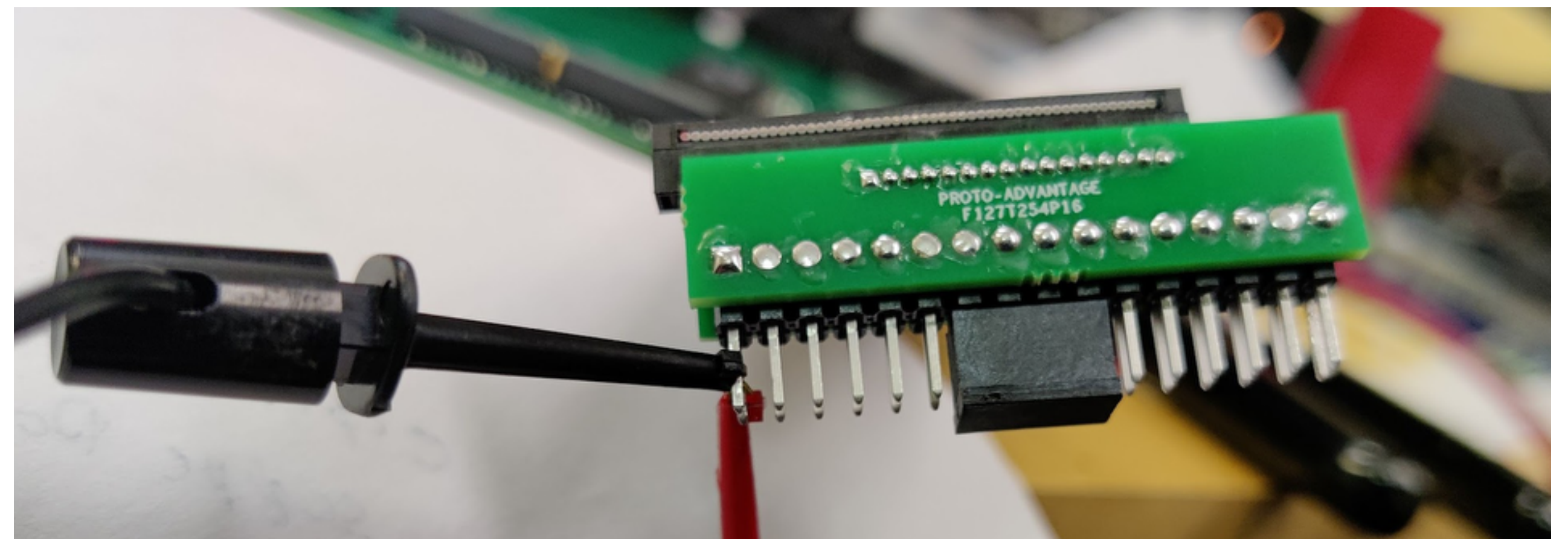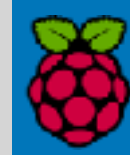
- **PCB connected to function generator**
  - **SPI 4 ribbon cable leftmost pin**
- **Reading 1 byte of data from the ADC every 10ms**
  - **Multiplexer not configured**
- **Sending 4.4 Hz sine wave, reading 4.9±0.1 Hz**