

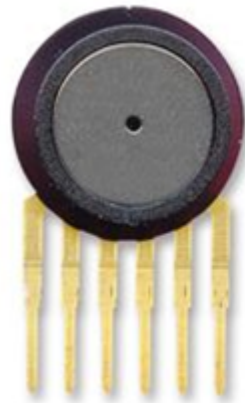
The steps towards a basic CanSat

Going through all this is necessary.

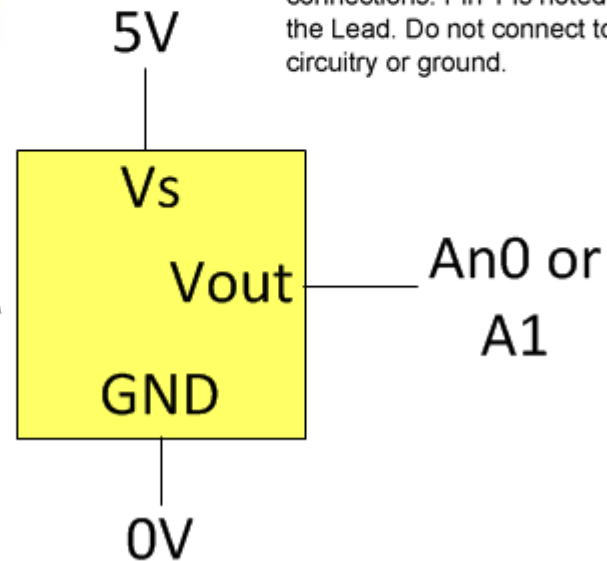
# Soldering

## Connecting the sensors

- What goes where?
- Use hand-outs



MPX4115A  
Or  
LM35



PIN NUMBERS			
1	V <sub>OUT</sub> <sup>(1)</sup>	4	N/C <sup>(2)</sup>
2	GND	5	N/C <sup>(2)</sup>
3	V <sub>S</sub>	6	N/C <sup>(2)</sup>

1. Pin 1 is noted by the notch in the lead.
2. Pins 4, 5, and 6 are internal device connections. Pin 1 is noted by the notch in the Lead. Do not connect to external circuitry or ground.

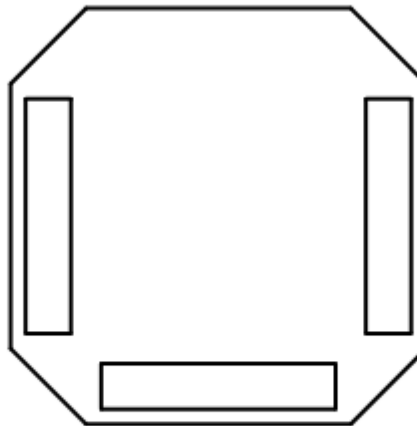
# Soldering

- Where to connect

GND	5V
D53	D52
A7	A6
A5	A4
A3	A2
A1	A0
A11	A10
A9	A8
5V	GND

Analog side

Sensor board

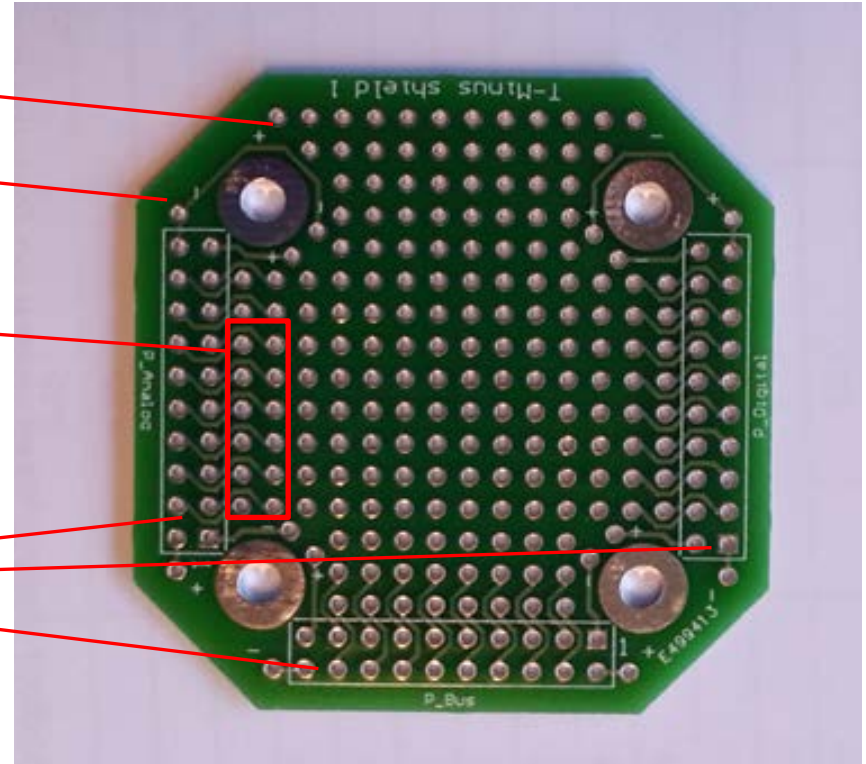


5V								GND
GND			TXD					5V

GND	5V
D15	D14
D13	D12
D11	D10
D9	D8
D7	D6
D5	D4
D3	D2
D1	D0
5V	GND

# Soldering

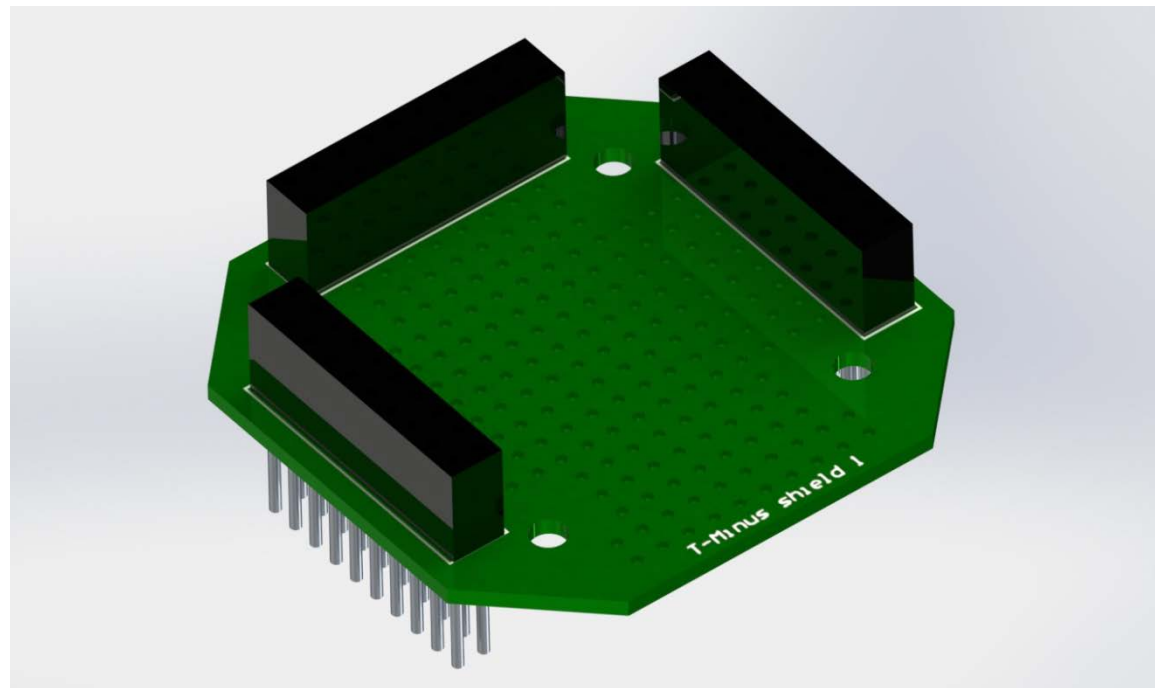
- 5V
- 0V
- Analogue inputs
- Connectors
- The side with the white lines is the top side





# Soldering

- Start with the headers
  - Simple and easy starting point
  - A good place to practice soldering

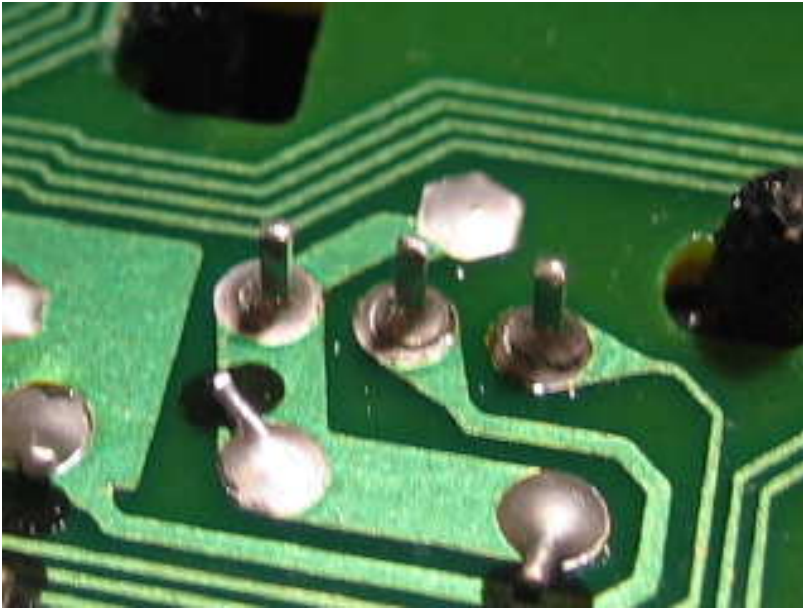


# Soldering

- Connecting components to PCB
  - Components on top side
  - Soldering on bottom side
- What is a good solder connection?

# Soldering

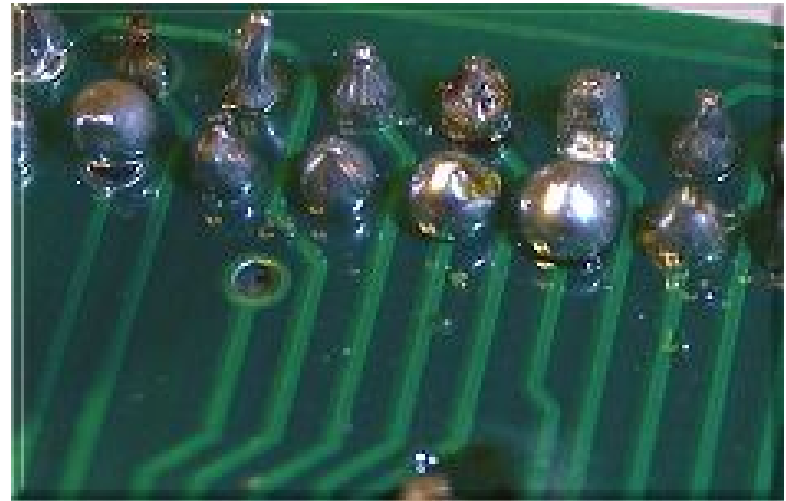
- Good or bad?





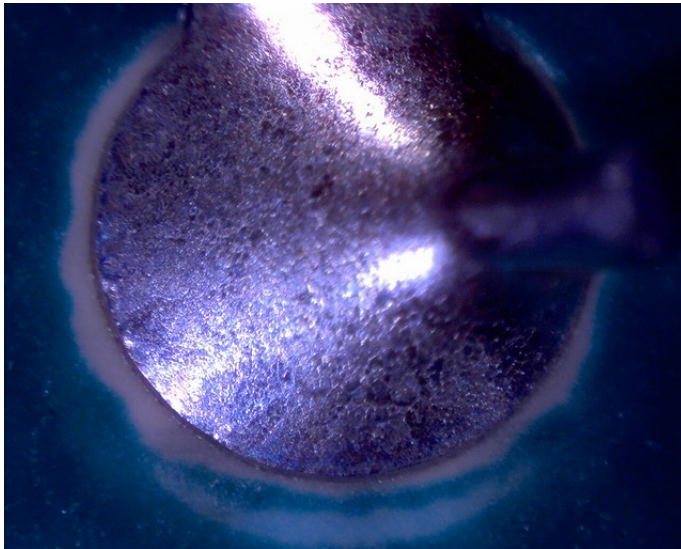
# Soldering

- Good or bad?

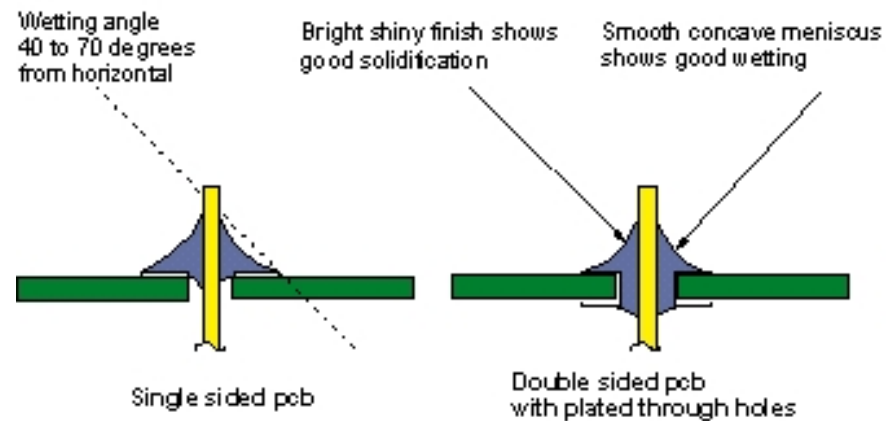


# Soldering

- Good



## Anatomy of a good solder joint

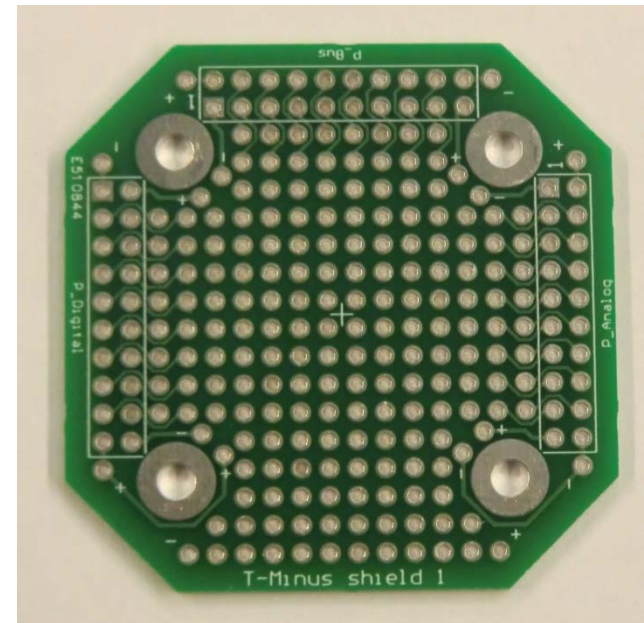


# Soldering

- Soldering takes time  
(between 1 and 2 seconds)
  - Heat up both surfaces
  - Then apply solder
- End result should be:
  - A smooth surface
  - Solder all around the component leg

# Practical session

- First solder the headers
- Solder and test sensors one by one
- Use the correct side for the headers
  - Otherwise the + and – signs are on the wrong position

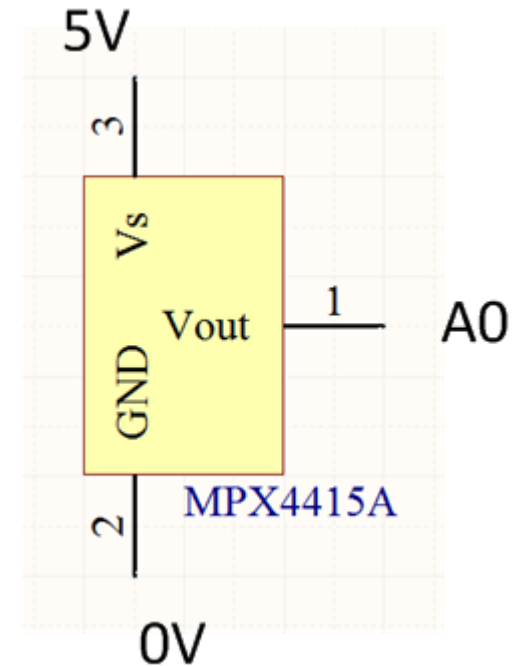




# CanSat kit sensors

## MPX4115A

- Analogue
- 46mV/ kPa



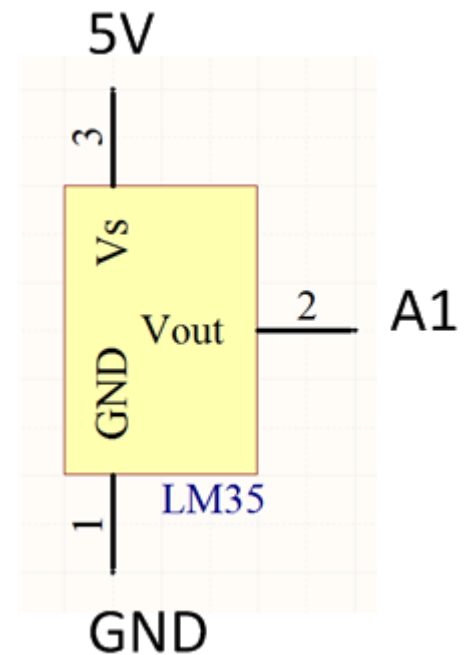
PIN NUMBERS			
1	$V_{OUT}^{(1)}$	4	N/C <sup>(2)</sup>
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# CanSat kit sensors

## LM35

- Analogue
- 10mV/°C



# CanSat kit sensors

## NTC thermistor

- Analogue
- $V_{out} = (5V * R) / (R(T) + R)$

