Introduction to H-Bridge
How does a motor turn?

- If you want to change the direction of the rotation, change the direction of current flow.
How much current does a motor need?

- Your nano board works @ 5 V, 0.5 Ams AT MOST
- Depending on the application, motors need huge amount of voltage and current
How much current does a motor need?

- Can I connect my Nano board to 25K Volts?
  - Yes you can
    - Please inform me before doing it, I will run away from you as far as possible
  - You should use electric switch
    - Relay
    - Transistor/h-Bridge
The small current flowing from coil creates electro-magnetic force which attracts the pivoted contact and circuit is closed on the large current side

- Provides isolation
- Slow reaction due to mechanical motion
- Drive signal A & B from your Nano board
  - Transistor is an electronic switch
  - What happens if A = 1, B = 1 and V = 25 K?
A & B must be driven by square wave pulses as shown above

- Have you seen such square wave before?
Component: H-bridge Circuit

- L298 chip & Circuit
Driving Mode
Goals

- Forward
- Backward
- Rotate clockwise
- Rotate anticlockwise

- Free running (Option)
Drive Forward

- All wheels
  - Same speed
  - Rotate forward
Drive Backward

- All wheels
  - Same speed
  - Rotate backward
Rotate Clockwise

- The left wheel
  - Same speed
  - Rotate clockwise

- The right wheels
  - Same speed
  - Rotate anticlockwise
Rotate Anticlockwise

- Two left wheels
  - Same speed
  - Rotate anticlockwise

- Tow right wheels
  - Same speed
  - Rotate clockwise