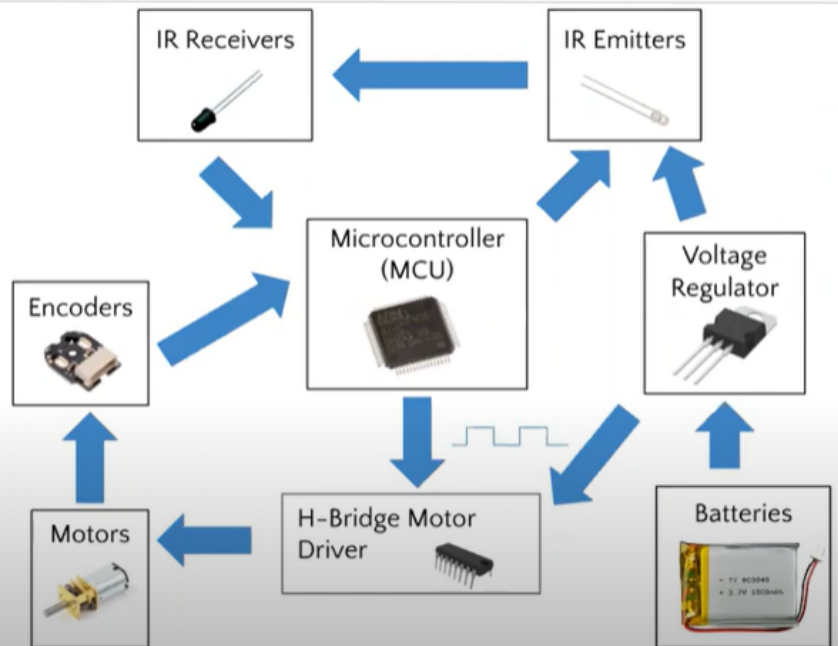


# Anatomy of Micromouse



## Overview

- Power Circuit
- MCU
- Motors
- IRs
- Other components
- Advanced Topics:
  - Diagonal LEDs
  - Curve Turn
  - Saving to FLASH



2. batteries and test points and switch

3. Voltage regulator

4. Motors- 30:1 gear ratio, 6V ideal operating voltage max current draw- 0.67 A

15:1 gear ratio- more speed but encoder counts half as precise

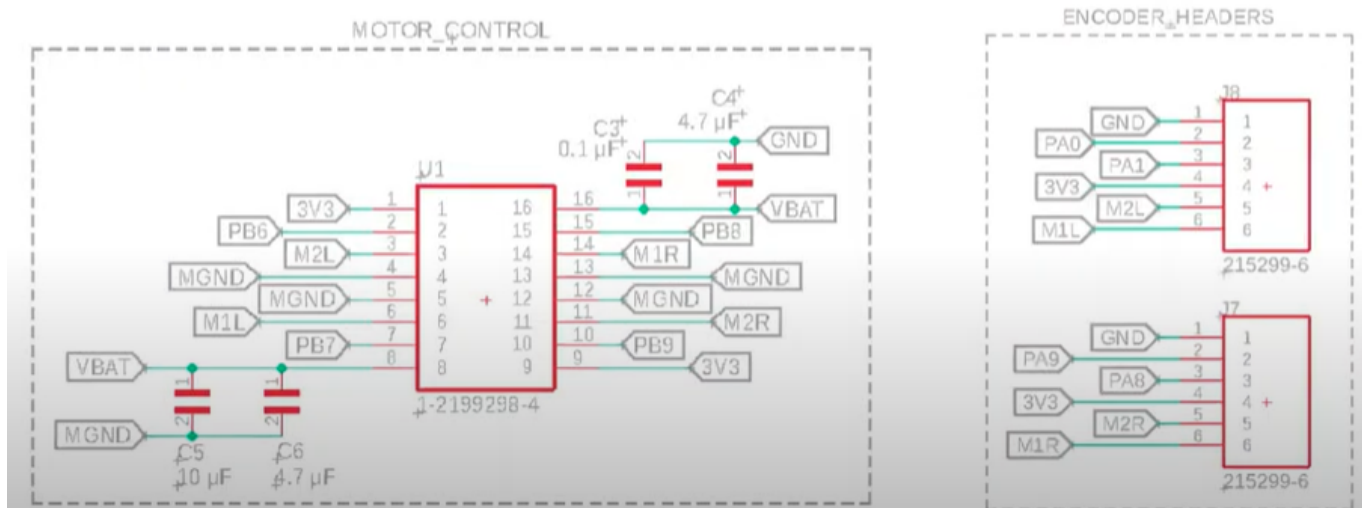
less precise encoder counts mean the angular rotation would be less precise but better speed during turns

5. Encoder options- top entry, side entry

6. H-bridge and encoder

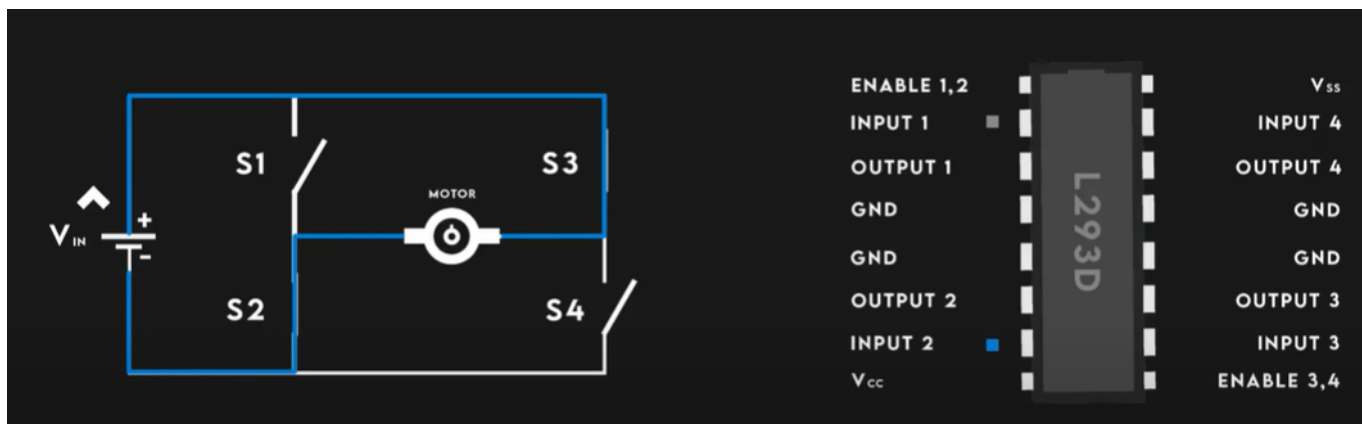
For more info about H-Bridges and Encoders, click [HERE](#)

## H-Bridge & Headers



7. IR Emitter- a transistor is used to switch on or off the IR emitter,

8. Gyroscope



INPUT 1	INPUT 2	ENABLE 1,2	RESULT
0	0	1	STOP
0	1	1	ANTI-CLOCKWISE
1	0	1	CLOCKWISE
1	1	1	STOP

Is the H bridge capable of supplying current to all the motors


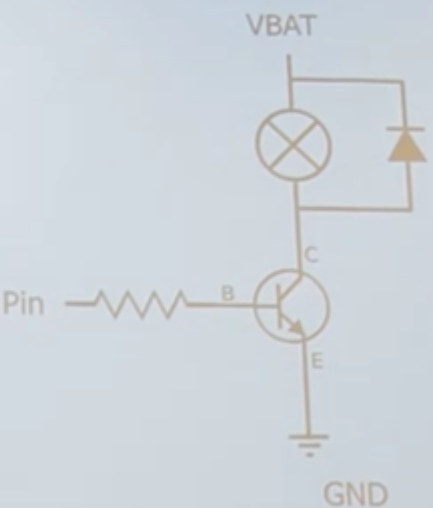
What is the maximum current required for each motor

**Flyback Diode**

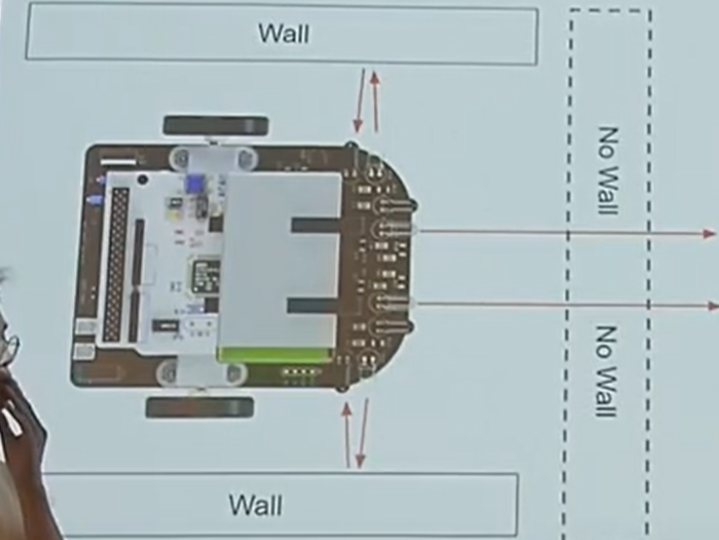
Recall that motors involve creating magnetic fields... **Inductance!**

Turning motors off results in a temporary voltage spike to maintain current (back emf)

Diode: allows current to flow in **ONE** direction



## Why 3 IR sensors



**Cons**

- Affected by ambient light
  - Certain light sources (e.g. the sun, fire) emit lots of IR light
- Requires calibration to measure actual distances
- Nonlinear scaling of distances
- Variations between “identical” sensors

because we are dealing with inverse square law to detect where the walls are we will be dealing with non linear scaling of distances which will become a little bit annoying if we are trying to figure out values

if battery are not of too much charge then the light emitted won't be of full intensity

## Motor

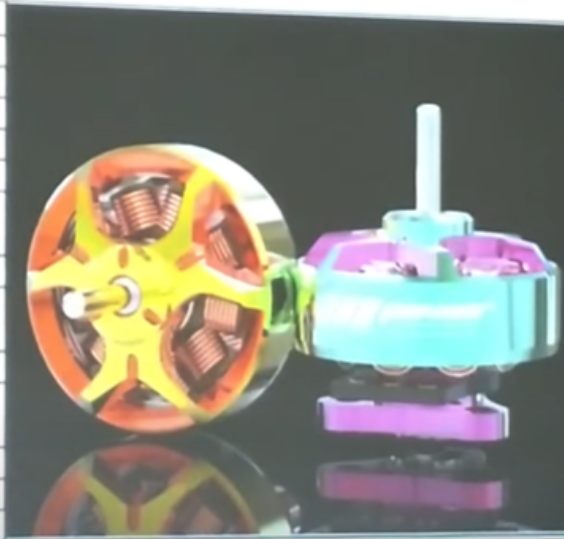
# Full spec sheet

RCINPOWER GTS V3 0802 27KV BLDC Motor  
3 different KV ratings; this is highest of all 3

From RCINPOWER GTS V3 0802 1S: 22000KV - 25000KV - 27000KV (yourfpv.co.uk)

## GTS V3 0802-27000KV

Technical Datas	
KV	27000
Configu-ration	9N12P
Stator Diamter	8mm
Stator Length	2mm
Shaft Diameter	1mm(1.5 inside)
Motor Dimension(Dia.*Len)	Φ 11.2*8.2mm
Weight(g)	1.97(with plug)
Idle current(5V)(A)	0.3
No.of Cells(Lipo)	1S
Max Continuous Power(W)3S	26.6
Internal Resistance	95mΩ
Max Current(3S)	7.2A
Max.Efficiency Current	(1-2A)>82%



15

This is an alternative motor that can be used instead of the normal DC brushed motor. The above motor is used for small drones that can fit in the palm of ones hand. it has high RPM an

## How does center of mass affect deceleration

Deceleration needs to be limited to a lower value than acceleration because the mouse centre of mass is a it closer to the front wheels

Flash