ECSESS Robotics Club

Week 4 – Buttons and H-bridge

Issues from last week, Pickit 2 not working

- Possible solution we're going to try:
  - Right click on Robot -> Properties
  - Change from Pickit 2 to Simulator
  - Open separate Pickit 2 software, import hex and program it

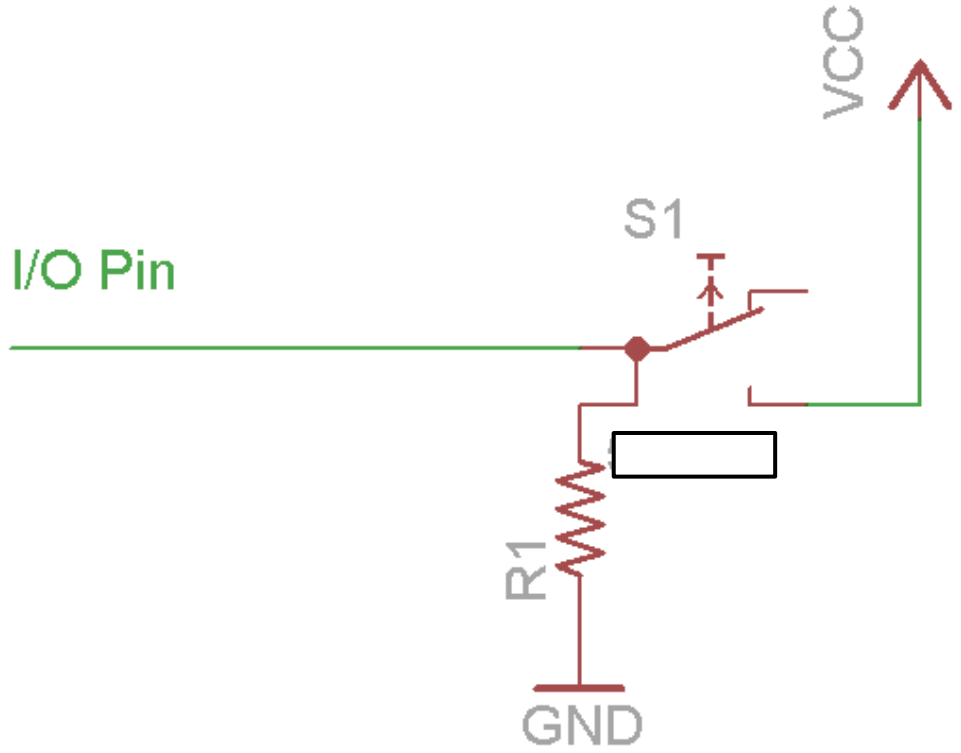
Week 3 – H-bridge

- Lets cover:
  - Using buttons
  - H - bridges

Button reading

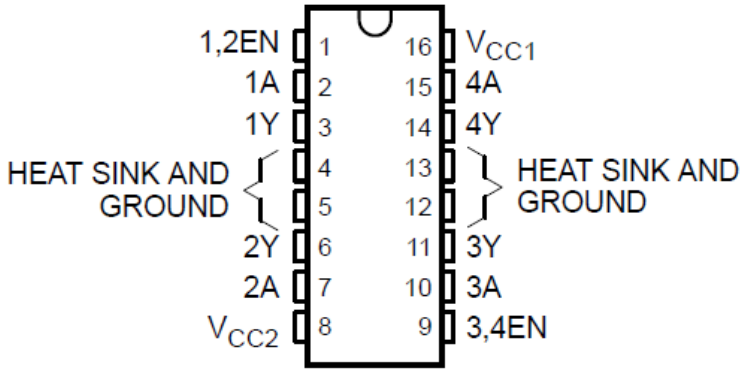
```
// Define pins for colors
#define red RB0
#define green RB1
#define blue RB2
#define ON 1
#define OFF 0
#define BUTTON RB3

void init(void){

    OSCCON = 0b01100000;        //set frequency to 4MHz
    TRISA = 0x00;               // set all pins in PORTA as outputs
    TRISB = 0x08;               // set all pins in PORTB as outputs except RB3 as an input
    ANSEL = 0x00;               // ignore this
}

int main() {
    init(); // call the function above
    while(1){
        if (BUTTON == ON)  // check if button is being pressed.
            red = ON;    // do something, turn on an LED?
        else
            red = OFF;
    }
}
```

Button “pull down” schematic



L293 H-bridge chip

N, NE PACKAGE
(TOP VIEW)



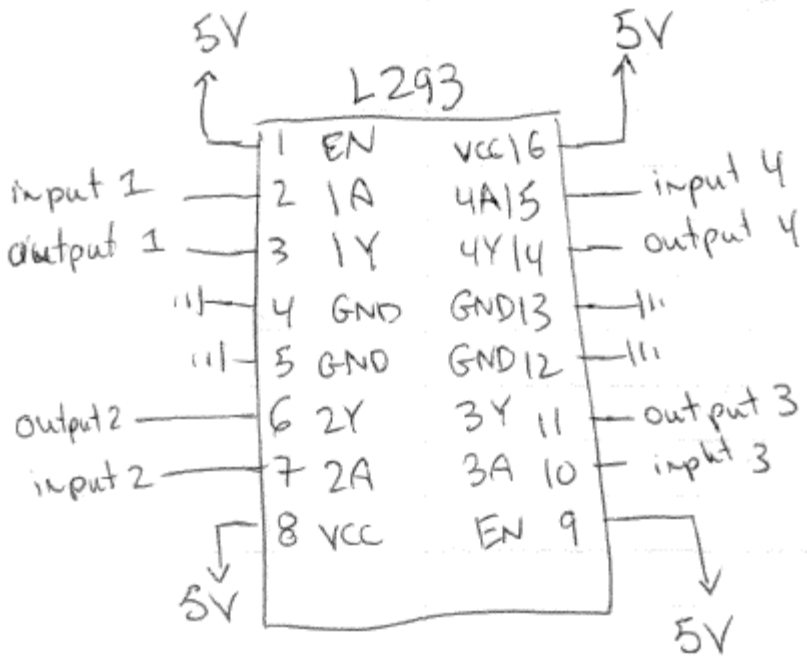
FUNCTION TABLE
(each driver)

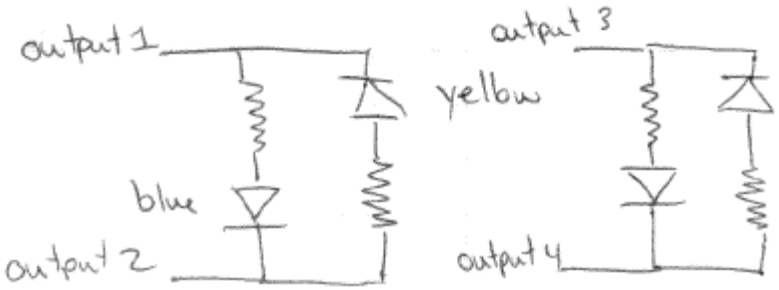
INPUTS†		OUTPUT
A	**EN**	**Y**
H	H	H
L	H	L
X	L	Z

H = high level, L = low level, X = irrelevant, Z = high impedance (off)

† In the thermal shutdown mode, the output is in the high-impedance state, regardless of the input levels.

Sketchy hand drawn schematic





To-Do

- Finish yellow / blue LED piece on foam board
- Get 7-segment to work
- Use 2 buttons to count up / down
- Get L293 working with LEDs
- If L293 works with LEDs, come try with power source and your motors