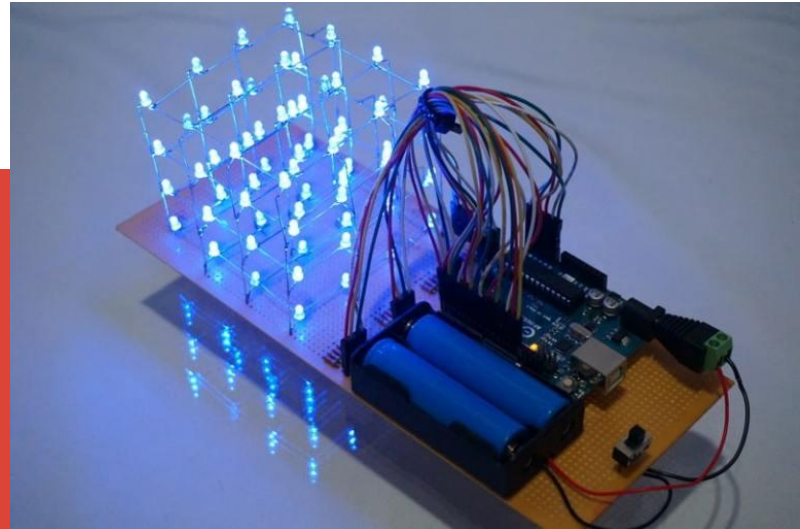


TECH TUESDAY

CODING WITH ARDUINOS

SANTA BARBARA PUBLIC LIBRARY
MARCH 10, 2020



REVIEW

IONS

- POSITIVE OR NEGATIVE CHARGE
- IMAGINE BEING A POSITIVE CHARGE



CATS ARE GOOD
(POSITIVE)



ONIONS
ARE
BAD
(NEGATIVE)

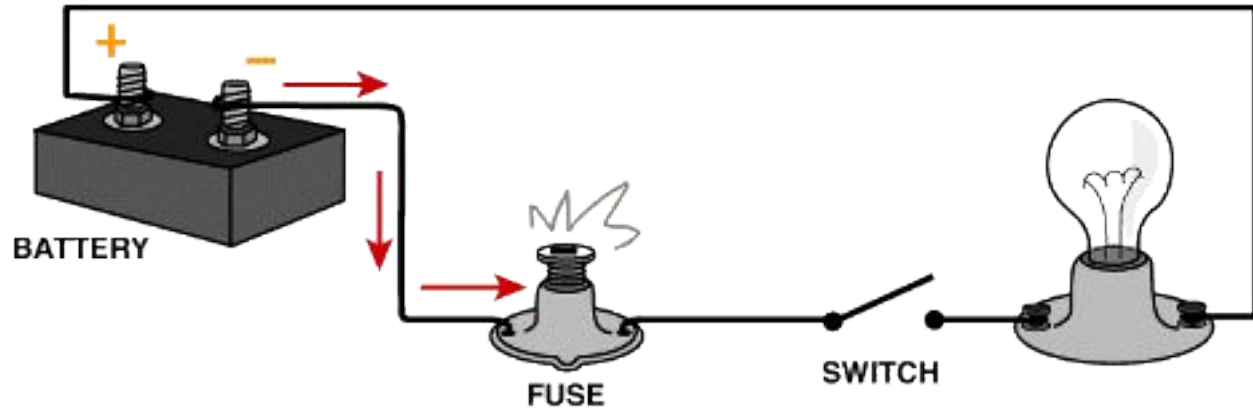
GROUNDING

- TOO MANY OF ONE TYPE OF ION
- USE GROUND TO NEUTRALIZE
- DON'T USE SELF AS CONDUCTOR!



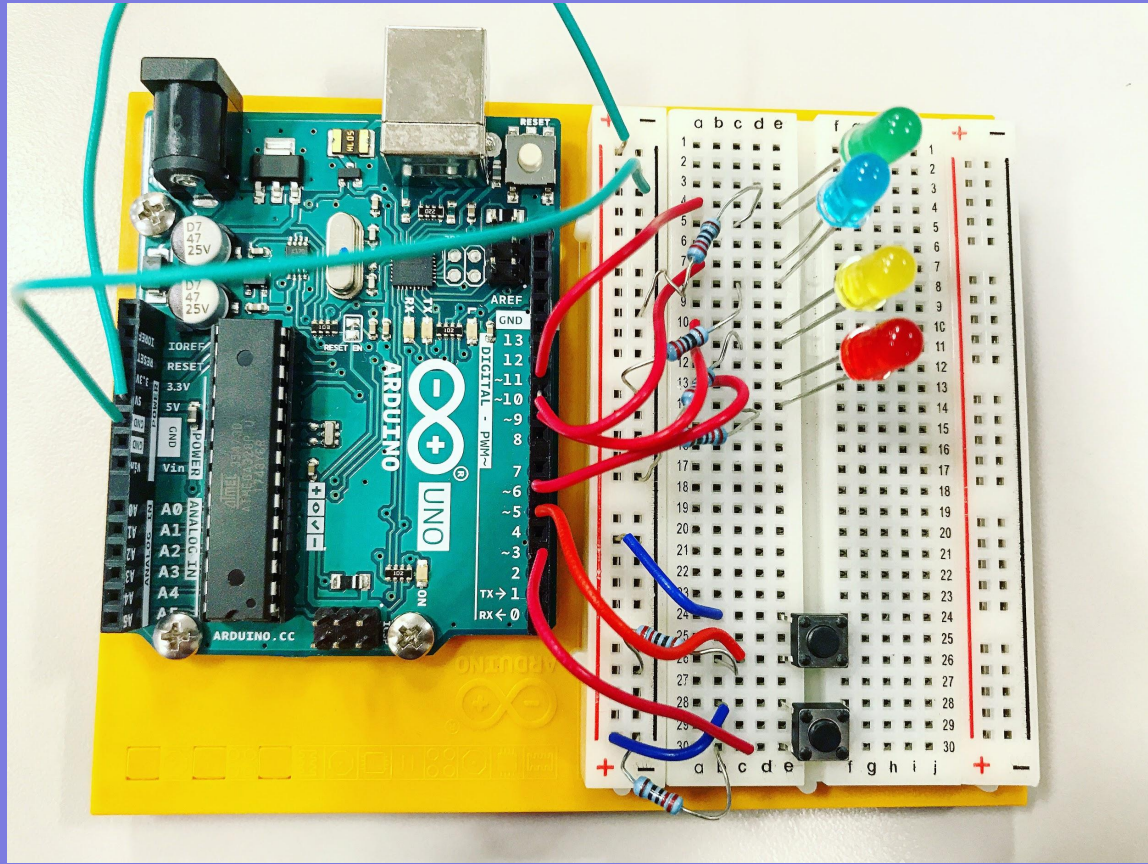
SHORT CIRCUITING

- COMPLETE CIRCUITS
- WHEN TOO MUCH CURRENT FLOWS
- PARTS BREAK
- PEOPLE GET HURT



WHEEL-OF-FORTUNE

- 5 VOLTS TO POSITIVE
- NEGATIVE TO GROUND
- LEDs IN BREADBOARD COLUMN E
 - POSITIVE END: ROW 4, 7, 10, 13
 - NEGATIVE END: ROW 5, 8, 11, 14
- RESISTORS COLUMN C TO NEGATIVE
 - ROWS: 5, 8, 11, 14, 26, 30
- POSITIVE TO BREADBOARD 24B, 28B
- DIGITAL 3 TO BREADBOARD 30C
- DIGITAL 5 TO BREADBOARD 26C
- DIGITAL 6 TO BREADBOARD 13A
- DIGITAL 9 TO BREADBOARD 10A
- DIGITAL 10 TO BREADBOARD 7A
- DIGITAL 11 TO BREADBOARD 4A
- BUTTONS IN BREADBOARD [E24, E26, F24, F26] AND [E28, E30, F28, F30]



SOFTWARE

WHY SOFTWARE?

- ENABLE THINGS TO WORK
- ALLOWS FOR DECISION MAKING
- INCREASES EFFICIENCY
- SOLVES PROBLEMS



SETUP VS LOOP

- SETUP: DOES ONCE
- LOOP: REPEATS



OUTPUTS

- `SERIAL.PRINTLN("TYPE SOMETHING");`
- `SERIAL.PRINTLN(100);`
- `SERIAL.PRINTLN(COLOR);`



DECISION

```
IF (CONDITION){  
    //DO THIS;  
  
} ELSE IF(CONDITION){  
    //DO THAT;  
  
} ELSE{  
    //DO WHATEVER;  
  
}
```

```
if(1 + 1 == 3){  
    Wave Hi!  
}  
else if(Unicorns Exist){  
    Cry...  
}  
else{  
    Smile :)  
}
```

LIVE CODING

EXERCISES

1. WRITE THE CODE FOR THE LOOP OF OUR WHEEL-OF-FORTUNE PROGRAM
 - A. CASE I: START BUTTON IS PUSHED
 - B. CASE II: STOP BUTTON IS PUSHED
2. SLOW DOWN THE LED LIGHT COLOR CHANGE

EXTENSIONS

IDEAS

1. HOW DO WE MAKE THE LED BLINK WHEN WE HIT THE STOP BUTTON?
2. HOW DO WE ADD A 5TH LED TO THE CIRCUIT? TO THE CODE?
3. HOW DO WE MAKE OUR PROJECT WORK WITH ONLY ONE BUTTON?