

EE128 Final Project: Whack-a-Mole

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Overall Idea

- This project is the game Whack-A-Mole.
- A motor rotates, lifting up a flag.
- Hitting the button will “whack the flag,” rotating the motor the other way and lowering the flag.
- The score goes up, and another flag is raised.
- This continues until the end button is pushed, putting all flags down and ending the program.



Design

- Buttons

- Button 0: PORT C17
- Button 1: PORT A1
- Button 2: PORT A2
- Button 3: PORT C16
- Button Reset: PORT C18

- Motors

- Motor 0: PORT D4, D5, D6, D7
- Motor 1: PORT C0, C1, C2, C3
- Motor 2: PORT C8, C9, C10, C11
- Motor 3: PORT B2, B3, B10, B11

- SPI

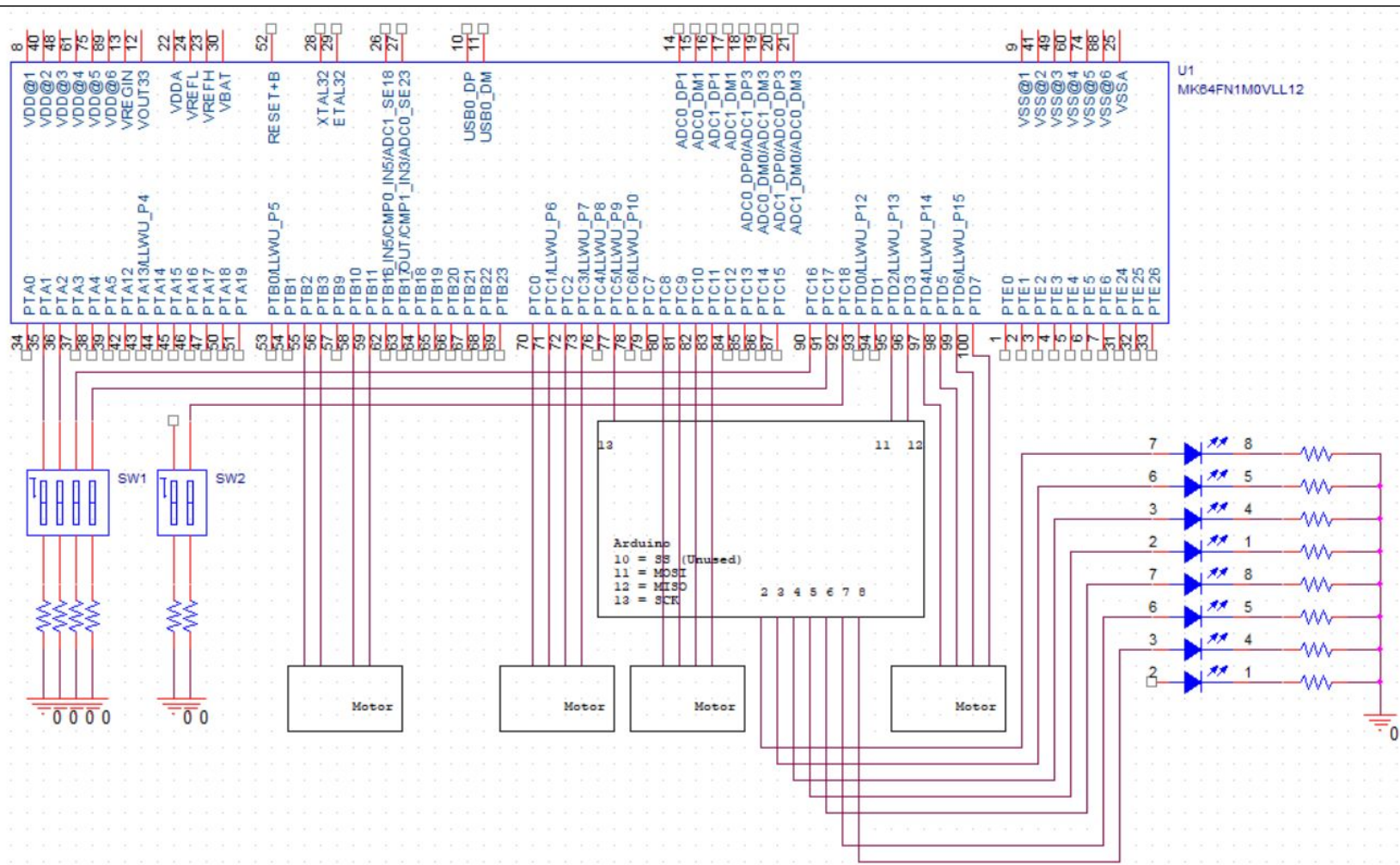
- MOSI: PORT D2
- MISO: PORT D3
- SCK: PORT C5

- 4D7S

- A: 2
- B: 3
- C: 4
- D: 5
- E: 6
- F: 7
- G: 8
- A0: D1
- A1: D2
- A2: D3
- A3: D4

- SPI

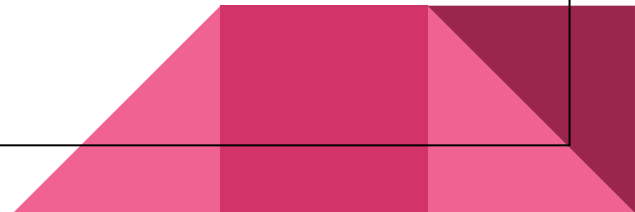
- MOSI: 11
- MISO: 12
- SCK: 13



Implementation

```
for(;;) {  
    //send string with score through SPI  
    if (currMotor == 0 && button0 == 1) {  
        ++score;  
        //motor 0 goes down  
        ++arrayIndex;  
        if (arrayIndex >= array.size()) {  
            arrayIndex == 0;  
        }  
        if (array[arrayIndex] == 1) {  
            //motor 1 goes up  
            currMotor == 1;  
        }  
        //repeat for motors 2, 3  
    }  
    //repeat for motors 1, 2, 3  
}
```

```
void loop (void) {  
    if (process) {  
        process = false;  
        //store string received in char array  
        //get last two characters in array  
    }  
    //output characters to 4 digit 7 seg  
}
```



Implementation

