
**Project Name : Battleship**

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**Course Name : ENSE 352**

**Project Report**

**Introduction :** I build a “Battleship game” written in C  on STM32 nucleo64-f103rb board.

**Equipment used** : Wiring kit, 270 ohm resister, 10k ohm resister, 5 LEDs, 1 dip switch.

**STM Ports and pin configuration :**

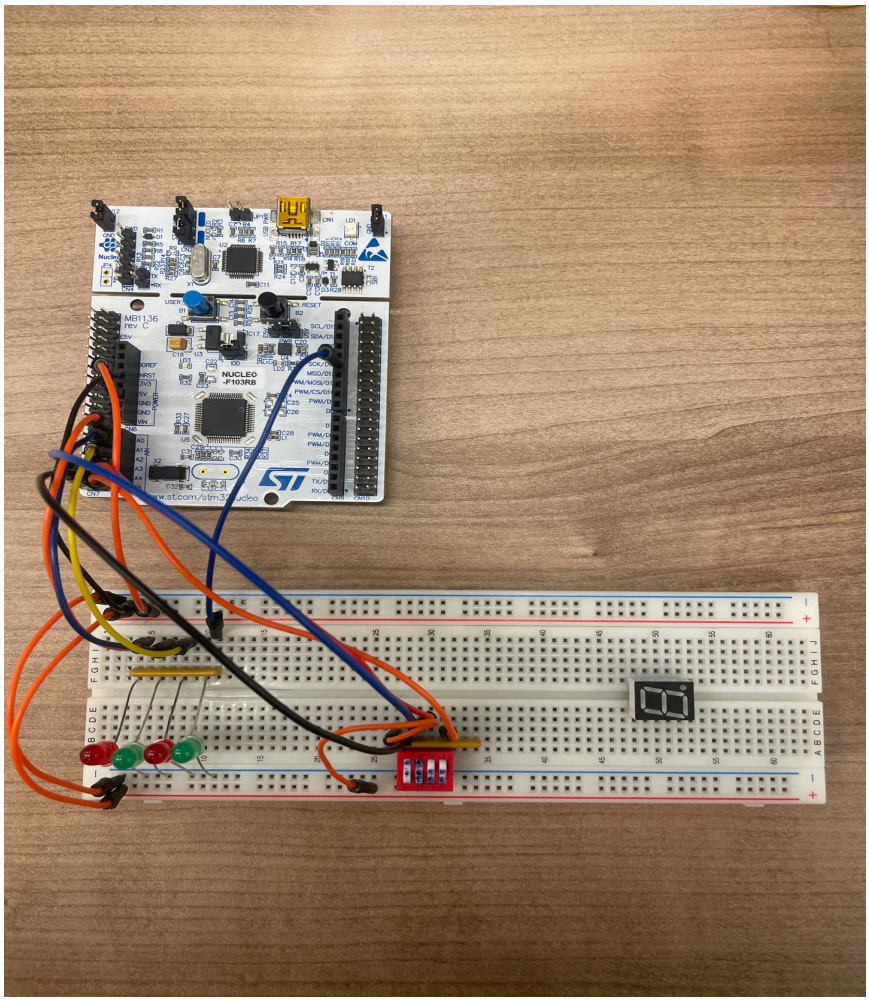
| Output Ports | Led | Specification |
|---|---|---|
| **PA0** | Red | Miss |
| **PA1** | Green | Hit |
| **PA2** | Red | Hit & Sink |
| **PA6** | Green | Game Over |

| Input Ports | Switch | Specification |
|---|---|---|
| **PC0** | SW0 | SW0 * 1 |
| **PC1** | SW1 | SW1 * 2 |
| **PC2** | SW2 | SW2 * 4 |
| **PC3** | SW3 | SW3 * 8 |
| **PC13** | Blue Button | Take Input |

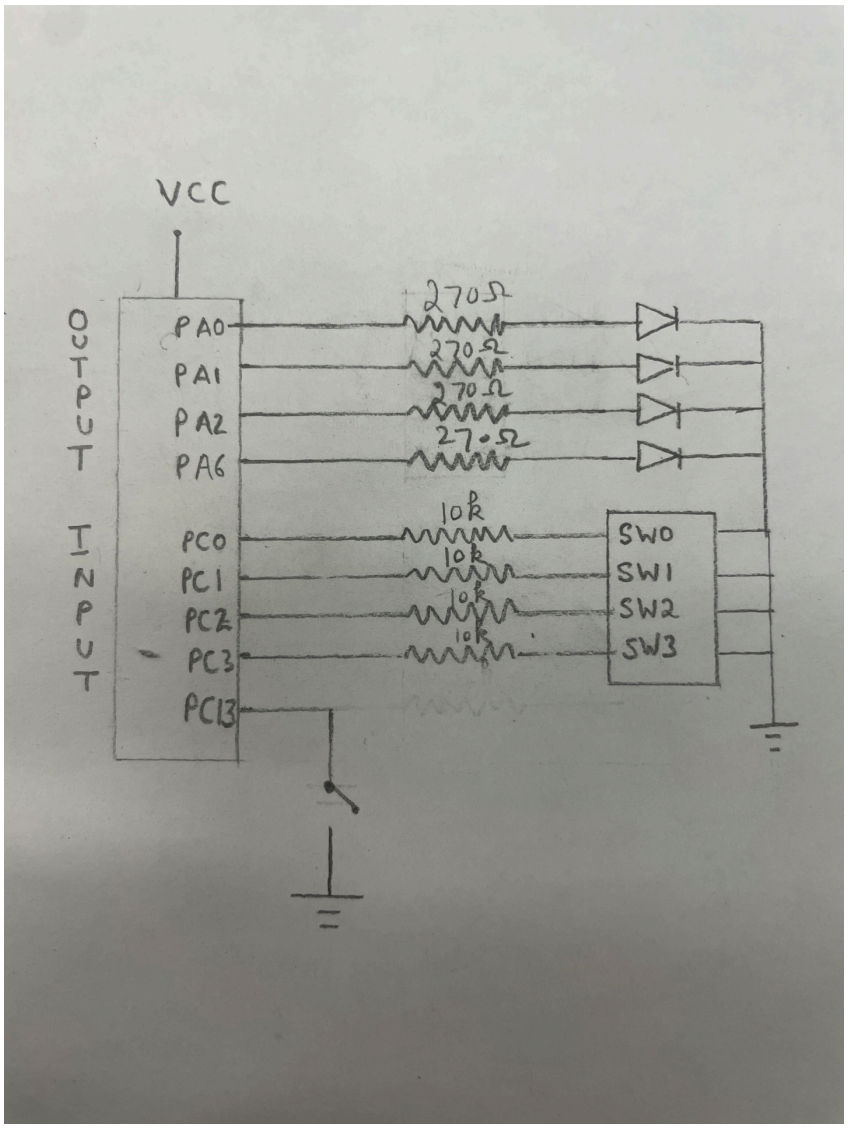
**How to play :**

1. Player 1 has to set 5 ships of size between 5 to 2 on the sea which is like a 2D array. Each ship is placed on this 2D array.
2. Player 2 doesn’t know the co-ordinates where Player 1 set his/her ships. Every time Player 2 has to guess the co-ordinate to hit the ship. Player 1 will enter the row first using the dip switch and then press blue button on STM board the send the input. Then Player 2 has to send column value using same logic.

3. If the given value hit the ship, our Green led which is Hit_Led ( second from left) will blink. If its a miss, then Red Led which is Miss_Led ( first from left) will blink. If the Player hit all co-ordinates of the ship then the 3rd Red Led ( 3rd from left) will blink.
4. Once all the 5 ships are sunk, Player 2 will win which will be represented by Green Led ( 4th from left).
5. Reset the STM board by clicking on black button.



**Picture for the circuit**




**Schematic for the circuit**

**Conclusion :** This project was fun as I have to deal with hardware at the same time implementing the C code for the game.