

Makefile

Project Name : Battleship

Submitted By : Ramanpreet Singh

Introduction : I build a “Battleship game” written in C on STM32 nucleo64-f103rb board. This game is played between 2 players. One Player has to hit the ships of the other player which is on a 2D array.

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.

Output Signal Table :

Output Ports	Led	Specification
PA0	Red	Miss
PA1	Green	Hit
PA2	Red	Hit & Sunk
PA6	Green	Game over

Input Signals :

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

Things I was failed to implement :

1. I tried to put another Led to the circuit to show that if the same co-ordinates has been input before. I tried putting all co-ordinates to 0 when it hit the ship. Then do an if statement on co-ordinates to see if the value is zero. If the value is zero then, that input was taken before. I already have the algorithm, just not enough time to implement it
2. I was also trying to do 7 segment display as you can see in the picture but because I don't had enough time left so I left it.

Configuration options : The code I am submitting is the demo code which Karim (Professor) used to test it. He said to make just one ship and sink it for demo. I had to edit the code a little bit. However, if you want to play with all 5 ships you just have to uncomment some code that I described in the comments.

Enjoy the game !