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## **Game Name: Jumping Man Game**

### **1) Description of the Game and Uniqueness**

The “Jumping Man Game” is fresh and audacious game that full of fun where all ages can play this game at anywhere and anytime. This game is based on “Flappy Bird” but it adapts to character from “Bird” to a “Man”. The “Man” needs to jump when there is a block or obstacles in front of it. Hence, the user needs to push the button in order to make the “Man” jump to the block and indirectly avoid the obstacles as can be seen in Figure 9.

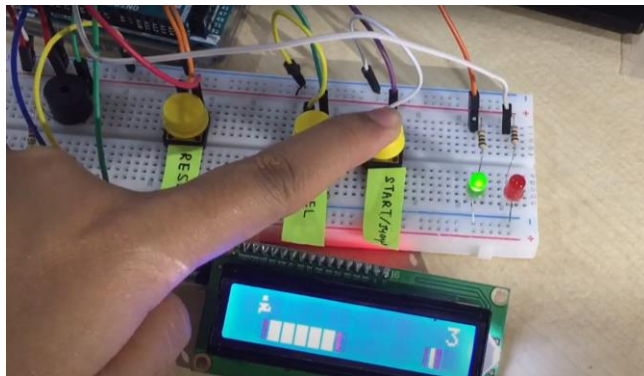


Figure 1 The user pushed the jump button

Some of the appealing features of this game is four different levels of game that can be chosen by the users. The four different levels are “Easy”, “Medium”, “Hard”, and “Impossible”. Each level embodies of different type of speed such as slow, fast, faster and fastest which corresponding from “Easy” until “Impossible”. Therefore, the users can challenge themselves to play any level that they would like to beat.

Another appealing feature of this game is it has reset button whereby the users can reset the game and choose another level of difficulty. For an example, the user did not want to play the level that they choose. They can simply change the level of difficulty by push the reset button. Then, choose another type of level difficulties.

In conclusion, this game can be played by any ages during leisure time to might help to get rid of boredom. It also has two appealing features which are four different levels of difficulties and reset button.

## 2) System Architecture

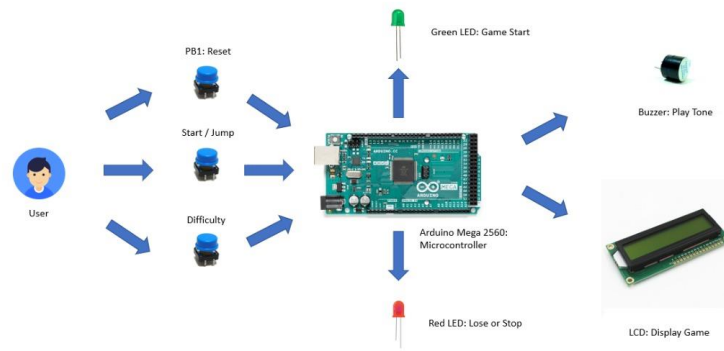


Figure 2 System architecture of Jumping Man Game

- i. User: The user will choose any of three buttons that have different functions
- ii. PB1 (Reset): The pushbutton one will reset the game back and the users can choose back another type of difficulty level and start the game back. As an example, the user chose the “Medium” level and started playing the game. However, he/she lose the game and wanted to restart playing back from the start. Therefore, he/she can push the PB1 to reset the game and choose another type of game level. This reset button also can reset everything in case there is any haywire or unwanted events happened.
- iii. PB2 (Difficulty Level): There are four difficulty level for this game which are “Easy”, “Medium”, “Hard”, and “Impossible”. The user can choose any level that they want to play by pressing this button. The “Easy” level where the paced of the game is slower. The “Medium” level where the paced of the game is much faster than “Easy”. The “Hard” level is faster than “Medium” level and the “Impossible” level is the fastest among all level.
- iv. PB3 (Start/Jump): The user can start the game by pressing this button and it also act as Jump button to make the “Jumping Man” in the game jump.
- v. Arduino Mega 2560: Process input and output
- vi. Red LED: This will represent if the user loses the game by colliding any block in the game.

- vii. Green LED: This LED will light up when the user start playing the game and continuously playing it. However, it will be low when the user loses the game.
- viii. Buzzer (Play Tone): Act as an audio signalling device
- ix. LCD: This LCD using I2C serial communication to Arduino Mega 2560. It will display output of the Jumping Man game.

### 3) Flowchart

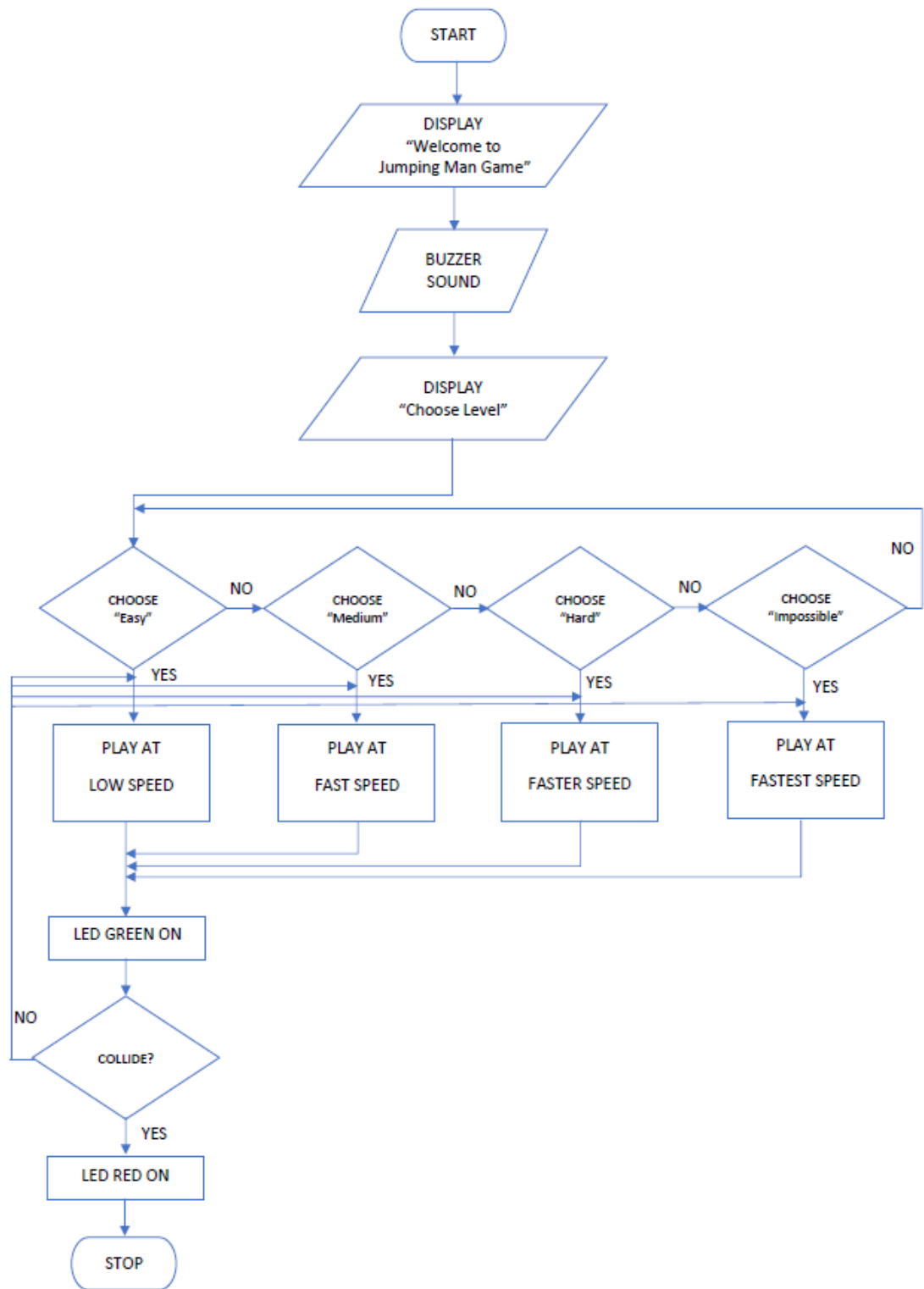


Figure 3 Flowchart of Jumping Man Game

#### 4) Circuit Design

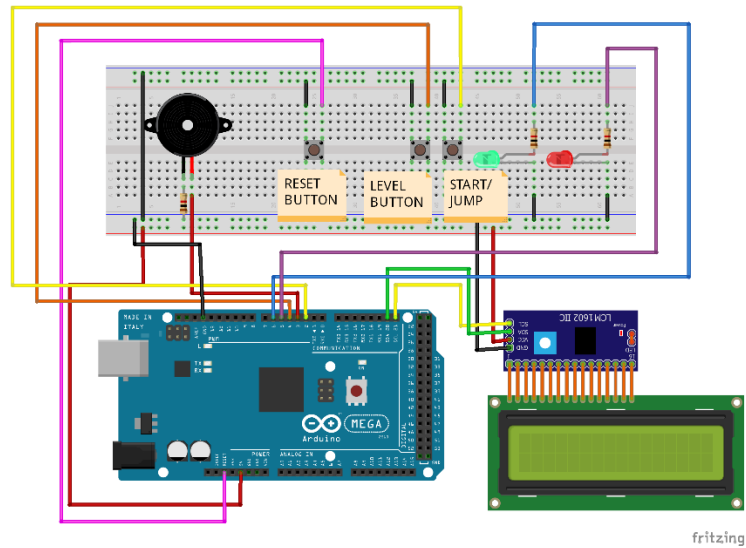


Figure 4 Circuit configuration of Jumping Man Game

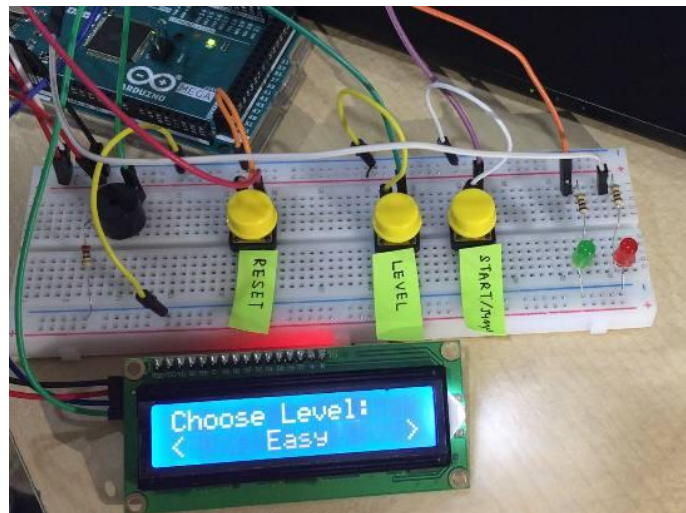


Figure 5 Real circuit configuration

COMPONENTS	PIN ASSIGNMENT
Buzzer	3
PB1	Reset
PB2	4
PB3	2
Red LED	6
Green LED	5
LCD	

SCL	21
SDA	20

## 5) Programming codes

- The coding can be referred to this link: [Click here to view the code](#)

## 6) Demo Video's Link

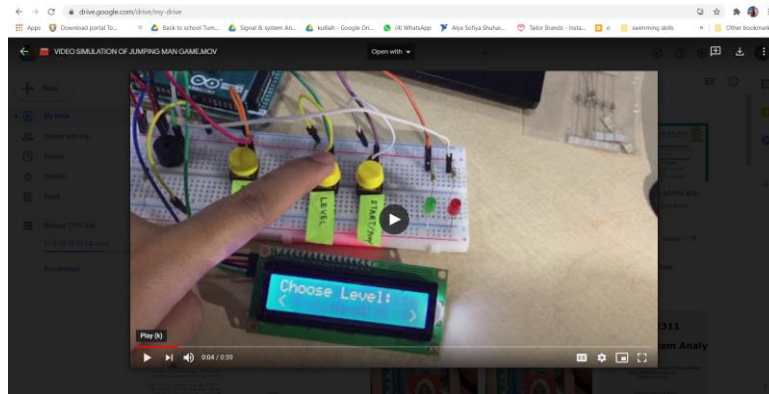


Figure 6 Video uploaded on Google Drive

- Link: [Click here to watch the video](#)

## 7) System Limitations and Recommendations

### i. Limitations:

- Only one player can play at a time
- The button hard to press which make the user lose the game easily
- No pause button to stop the game

### ii. Recommendations

- Add another LCD where this game be play by two players and can beat each other scores.
- Change the push button to “joycon” for easy movement of the game.
- Add scoring system whereby the next player that play the game can beat the score.
- Add the pause button to stop the game when the users might need to stop the game due to unforeseen events.