

# **Design Choice Document**

**Project - GP106 Computing Project**

**Group - A18**

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## **Components :-**

- 5 LEDs are chosen to indicate the user choices and the computer choices.
- 2 LEDs each are chosen to represent the user score and the computer score.
- 5 switches are used to input the user choice.
- 1 LED is used as the start/end indicator.
- 1 switch is used to start/end the game.
- Piezo buzzer is also used to indicate the end of a round/the game.

## **Variables :-**

- Round – Used to keep track of the rounds.
- Summary (List) – Used to display the game summary at the end.
- Computer Score – Used to keep track of the computer score.
- User Score - Used to keep track of the user score.
- Choices (List) – Contains all possible choices.
- Chances for winning (List) – Contains all the possible for a player to win a round)

## Procedure :-

- The game is started using the start/end switch. The start/end indicator light will be turned on throughout the whole game.
- The time will start to count from there on. The user should input the user choice before the time exceeds the 3 seconds time limit. (Otherwise, the computer will get a score. And the start/end LED will turn off and the piezo buzzer will sound. It will move on to the next round after that.)
- The respective LED will blink once according to the user choice. (E.g.: If the user chooses “Rock”, the LED indicating “Rock” will blink once.)
- The computer choice is then displayed through the LEDs after some time. It is chosen randomly based on the CHOICES list.
- Then the system will check whether the user or the computer has scored, and the respective score will be increased by 1.
- To display the score, the binary system is used with 2 LEDs for each user score and computer score. (With this system the maximum amount that can be represented is 3. If a player scores 4 points, the 2 LEDs will blink nonstop. Out of 7 rounds, if any player scores 4 points, they will be declared as the winner. So, it is unnecessary to indicate 5, 6, or 7 points.)
- To indicate the round is over, the start/end indicator LED will blink 5 times and the piezo buzzer will sound. Then the 5 LEDs used to display the choices will be turned off.
- After that, the next round will start.
- The time will start to count for the next round from there on.
- This will go on until the game ends after 7 rounds.
- The game will end after 7 rounds or if any of the players score 4 points. The user can also end the game manually at any point using the start/end switch.
- This action will cause the start/end indicator LED to turn off and sound the piezo buzzer.
- The terminal will then display the winner.
- The 5 LEDs used to indicate the choices will blink 10 times and then the game report will be displayed in the terminal.
- After that, everything will be reset making the system ready to start a new game.

## Flow Chart :-

Team Number - A18  
Members -

- 1.E/21/087 - DEWAGEDARA D.M.E.S.
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