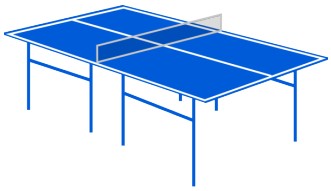
CS 351 Computer Architecture I **Winter 2020**
Assignment-1

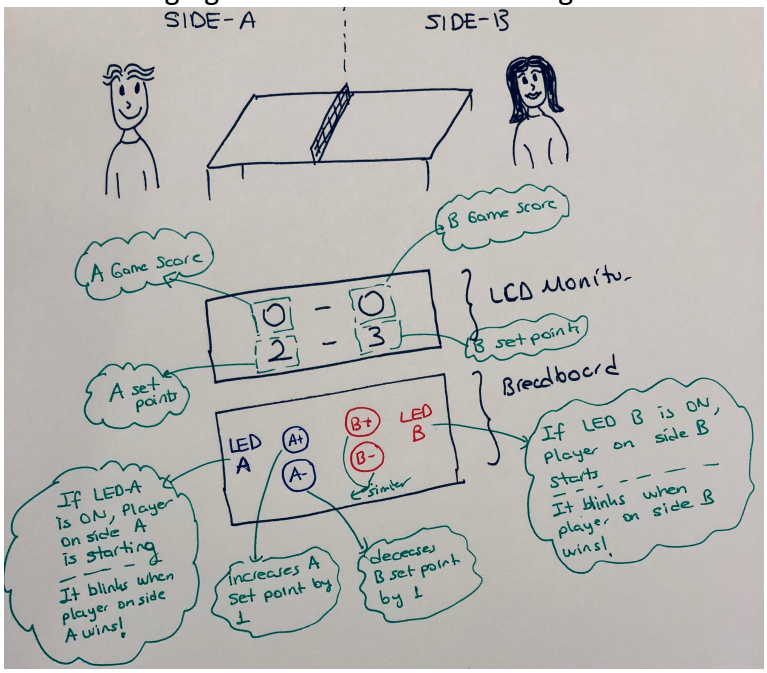
Due Date: March 6th, 2020

Design and Development of a Score Board Accessory for Ping Pong Game

Ping Pong (Table Tennis) improves your concentration power, reflex action, hand eye coordination and many more. However, the most frustrating part of playing ping pong is keeping the score and tracking which player will start at which end. In this assignment, you are asked to find a solution for this problem. You are going to design and develop an Arduino-based accessory for the Ping Pong game.



The following figure shows the overall design of the accessory.



Here are the requirements of the accessory:

- The accessory shall display game scores and set points as in two separate rows using LCD monitor.

- The accessory has four buttons: two for each corner of the table. One button for advancing the set point by 1, and the other for decreasing it by 1.

- Player can increase his/her score by pressing the button in his/her corner.

- After two points the receiver shall become the server, and the server the receiver, and so on after every two points until the end of the game or the score is 10-all. However, if a score of 10-10 is reached in any set, then each server serves only one point and then the server is switched.

- After each set, as the players switch side of the table, LCD monitor switches the scores and points as well.

- The player who first score 11 points is the winner, however a game must be won by at least a two-point margin.

- A match/game is played as 5 sets

Hint:
Please do the experiments suggested in the following web site. There are plenty of examples and experiments which will help you to build the accessory.
https://learn.sparkfun.com/tutorials/sik-experiment-guide-for-the-arduino-101genuino-101-board/introduction-arduinogenuino-sparkfun-inventors-kit

Submission:
Each team needs to deliver the accessory, perform a presentation and demo. After the presentation, each team member will be interviewed individually.