CS/EE 120B Custom Laboratory Project Proposal
Just Dance!

Alex Totah

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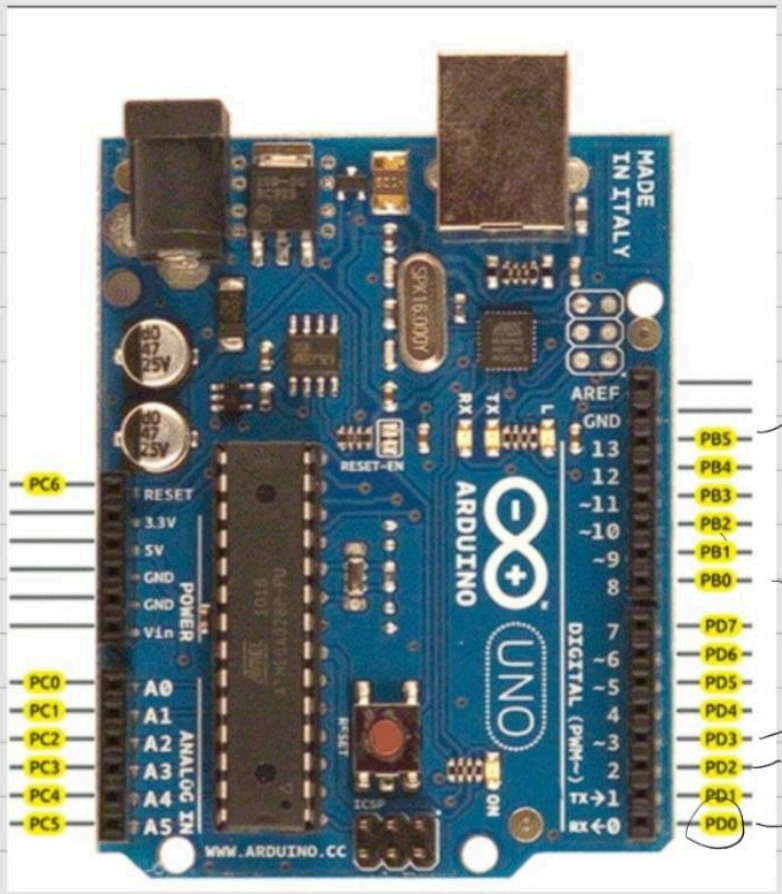
Introduction: Just Dance is a rhythm based dancing game. A player will be prompted with a stick figure image on a screen and are required to imitate its position in rhythm with the song. Their motion is detected using a wireless “remote”. The player’s score will be determined by how in sync their moves are.

Hardware Components:

BoM:

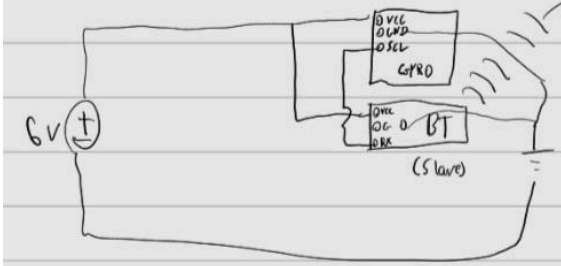
1. Elegoo UNO R3 microcontroller
2. Solderless breadboards x 2 (for display and “remote”)
3. HC-05 Wireless RF Bluetooth Transceiver
4. HiLetgo GY-521 MPU-6050 MPU6050 3 Axis Accelerometer Gyroscope
5. Button to start the game
6. Buzzer to play song

Diagram (see other page):



Remote

Blue tooth reciever on Arduino



Basic Functionality:

Upon receiving power, the system will be in an off state until the on button is pressed. Once the button is pressed, The screen will ask the user to press the button. If the button is pressed a second time, a three second timer will begin before the game starts.

The LCD will then display a cound down before starting the game displaying stick figueres holding the remote in several positions while the buzzer plays a rhythmic melody for the player to dance to. If the player is early or late, points will be deducted from a 100 point total. If they are perfect in their dancing, they will loose no points. Their final score will be a letter grade (e.g A+, B, C-) If the button is pressed during the gameplay, the game will display a paused screen.

If the button is held for two seconds while paused, the game will turn off and the current data game will be erased. The system will restart once the button is pressed again.

Build-Upons:

1. HC-05 Wireless RF Bluetooth Transceiver
2. Accelerometer
3. HiLetgo 1.8" inch ST7735R SPI 128 * 160 TFT LCD Display Module with PCB