

ECE 153B Final Project Proposal

Voice Controlled Flappy Bird

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Section: W 7:00 PM - 9:50 PM

Overview:

For this project, I will be using the STM32L476G Discovery board to interface with a 16 x 16 LED display matrix and a sound sensor to create a Flappy Bird styled game. The bird will be represented by a 3x3 pixel block on the display matrix and the pipes will be a 2 pixel wide column moving towards the bird. Instead of tapping in order to have the bird fly, the player will “hum” into the sound sensor. The bird will fly upwards proportional to the volume of the player’s input. I would also like to program an option for the player to select a more difficult mode, where the velocity of the pipes toward the bird will increase as the game progresses.

Peripherals:

- 16 x 16 LED display matrix
- Sound sensor

Software Design:

To begin the game, a reasonably loud sound will need to be detected by the sound sensor. After this sound is detected, a while loop will continually execute the game until the signal to stop is detected. This signal will be sent when a pixel belonging to the bird overlaps with a pixel belonging to a pipe. The gaps within the pipe will be a set 5 pixels and the location of the gaps will be generated by a random function.

Goals:

- Start the game after a sound is detected from the sound sensor which exceeds a certain input value.
- Find a way to convert the input from the sound sensor into movement of the bird in a fashion that is comfortable to the player and conducive to smooth gameplay.
- Display the bird as a cluster of pixels and the pipes as a 2 pixel wide column.
- Correctly detect the end of the game when the bird overlaps with the pipes.
- Signal the end of the game with some pixel animation.