Golf Course Cart

ODT Summative Assignment

By Falak and Sama

GOLF COURSE CART

The game simulates a mini golf mechanism using a servo motor, two pushbuttons, an LED, and a NeoPixel. The first pushbutton is used to trigger the servo motor, which rotates and acts like a golf club hitting the ball. The LED lights up and the buzzer goes off to show the ball has been put.

The second pushbutton is used by the player to give feedback, which can trigger a different light response on the NeoPixel. (which is the surprise.

The ESP32 reads both button inputs and controls the servo and lights to create an interactive golfing game experience.

Ideation

Initial ideas- basketball hoop scoring, moving target, car dash.

sketching out different parts of our model

We started by sketching the idea in different formats to see what is possible what would our limitations be, etc.

We wanted to try different modalities so we thought creating a small golf course would be a great way to mix different components

Back-end

Behind the swing of the golf club to the smile of the feedback.

We've used different parts to make up a whole and..

There's alot to un-tangle but before we start discussing our back end, we should see the components that went into this

Components Used

power module

buzzer

led

neopixel

servo motor

2 push buttons

ir sensor

Components Used

All the components we used, we kept in mind the pieces and motions we required hence :

Servo for the swing of the golf club,

Ir sensor to detect the ball in the hole,

Neopixel for an LED display of a smile,

Pushbutton for triggering required actions,

Power module to power the components such as the neopixel and servo motor,

ESP32 for coding the components

Circuit

PART A

Servo motor swing

PART B

IR detection, LED, buzzer

PART C

IR detection, LED, buzzer

Our Flight Path

We learnt to reflect and improve upon

- debugging
- weak connections
- stronger logics for code and mechanisms
- better understanding of modalities taught

Our pain points were

- we struggled with the right code unexpectedly not working even with the connections being right
- how do we maneuver the ir sensor without it losing it’s role
- learning neopixel’s limitations.

Logics Used

Pb1 Reads value continously, if value is 0 (pressed)
servo motor swings from 0 degree to 90-degree position.

this pushes the ball into the hole in the guided path and there it gets detected by an IR sensor.

The IR sensor values are read continuously, and if value is 0 (obstacle detected), it turns on the led and buzzer.

For a surpise feedback, a second pushbutton reads value continuously; if value is 0 (pressed) activates the neo pixel to creat a smile by switching on the required neo pixel pins.

Working Video

Contributions

FALAK:

- Servo motor code (golf club swinging)
- Neopixel initializations and glowing periods
- Golf course visual design
- Assembling the exterior

SAMA:

- IR sensor code (with LED and buzzer feedback) (ball detection)
- Neopixel color assignment (smiley)
- Circuit assembling
- Assembling the exterior

Behind the Struggle

Thank you!

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