

# ECE 153B – Winter 2023

## Final Project Proposal: (Vending Machine)

**Group members:** Wenjin Li, Alvin Liou

### **Overall:**

We are creating a Vending Machine that takes coins and dispenses what the user wants according to their choice. In the implementation, the take-coin system either uses an IR Infrared Obstacle sensor or an ultrasonic sensor. The item selected menu will use a display screen and Wii Nunchuck controller to select the item. According to choices that the user made will be dispensed by the machine.

**Peripherals:** LCD displays, Motors, Wii Nunchuk controller, IR Infrared Obstacle sensor/Ultrasonic sensor

**Serial Interface Peripherals:** SPI, I2C

### **Features:**

Coin detected system, Item selected menu, Item dispenses system.

Additional features that could possibly be added:

- Taking in more than 1 kind of coin.
- Dual motor item grabbing system.
- Restocking system
- Hold and dispense more than 1 item.

### **Software structure:**

The IR Infrared Obstacle sensor or an ultrasonic sensor will detect(interrupts happen) whether there is a coin passing through the corresponding pipeline to collect the \$.

After the amount of \$ is collected, the program will start letting the user choose which item they want to buy using the Wii Nunchuk controller. After selection (interrupts happen) for display and motor

The program will push the corresponding item using the motor.

### **Website:**

<https://sites.google.com/view/ece-153b-vending-machine/home>

**Block diagram:**

