

# Coin Dispenser

## ECE153B Final Project Proposal

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### Overview:

We propose to create a coin dispenser that takes user input of the amount of change to dispense and automatically the correct amount of each coin for exact change. We preload the dispenser with quarters, dimes, nickels, and pennies. The user will input the amount of money to be dispensed from the dispenser, and the input will be displayed on the LCD board. The program will calculate and minimize the number of coins dispensed. It will also have a loader that will automatically keep track of the amount of coins of each type. If there are not enough coins to dispense the amount desired or no possible combination is found, the red LED will turn on.

### Peripherals:

- 12 button keypad
- Coin dispenser
- LEDs
- LCD board
- Motor and Motor controller

### Concepts used from class:

- Interrupts
- PWM
- LCD
- Timers and delays (for LCD interfacing)

### Goals:

- Design a coin dispenser
- Preload coins in the dispenser and keep count of the amount of each type of coin
- Configure keypad to take input from the user
- Dispense exact change
- Configure LCD screen

### Stretch Goals:

- LCD prints "Not enough coins"
- Dump all change
- Automatic loading
- Lock, unlock function
- Nice prototype (3D print case and solder vector-board)

### Group Responsibility:

- Corbin is responsible for the mechanical design and driver development. Kelly is responsible for the firmware design and QA.