

AUTODESK
Instructables

Dionysshake - Smart Cocktail Shaker

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The DIONYSHAKE is a smart cocktail shaker capable of making and shaking cocktails automatically via a menu of 150 recipes. Perfect for home or bar use to enjoy perfectly mixed drinks without any hassle.

Supplies

Materials

- **Steel plates (5mm thickness):** 4 pieces
- **Threaded rods and lock nuts:** Various sizes
- **3D printed PETG-CF parts:** Various parts for housing and holder
- **LCD display**
- **Raspberry Pi**
- **Digital temperature sensor**
- **Ultrasonic sensor**
- **Color sensor**
- **Asynchronous motor**
- **Silicone tubes**
- **Pumps (4 pieces)**
- **Strong magnets**

Tools

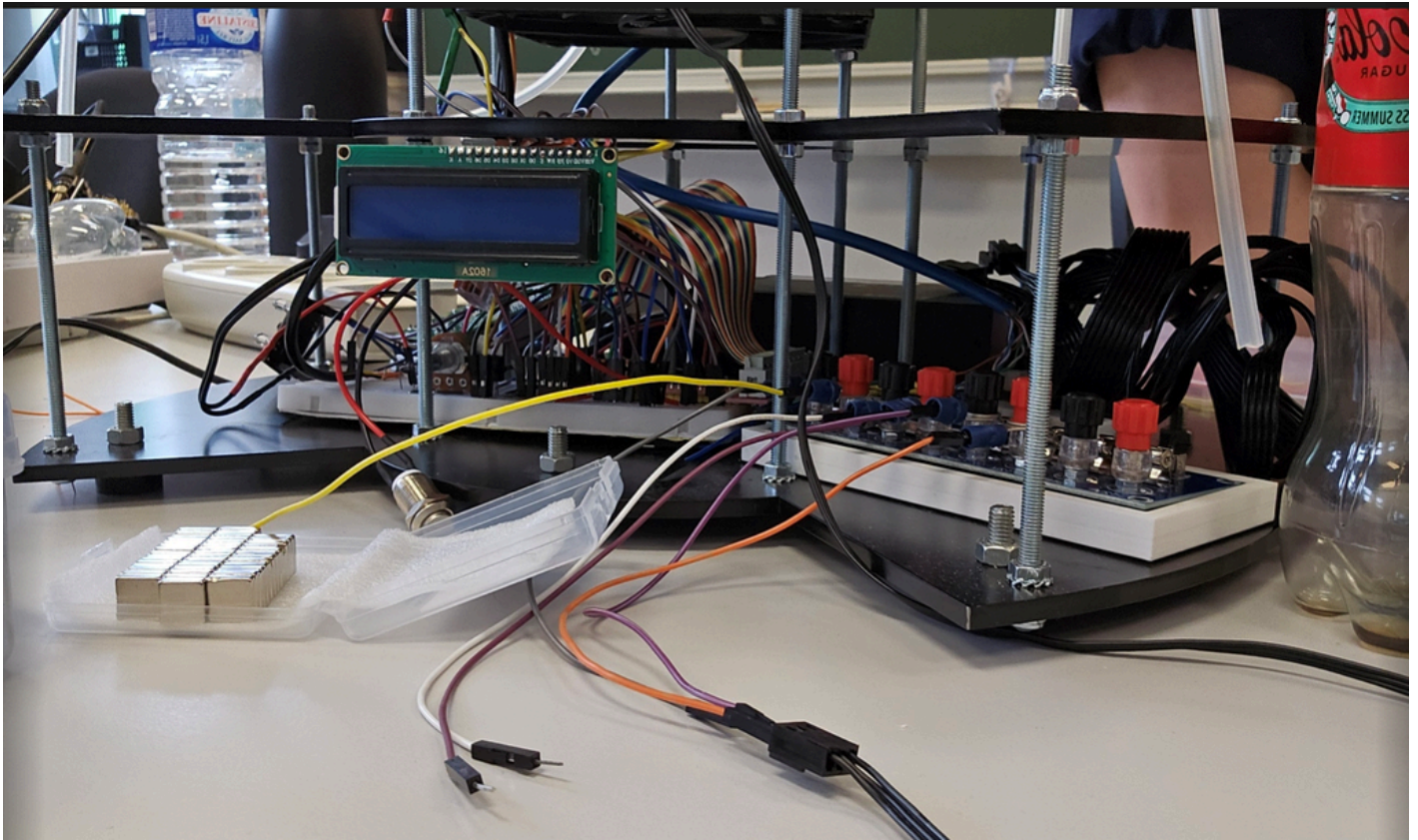
- 3D printer
- Soldering iron
- Drill
- Screwdrivers
- Pliers
- Multimeter

Step 1: Building the Base Frame



- Connect the 4 steel plates with the threaded rods. Use lock nuts where possible to ensure the structure is sturdy.

Step 2: Putting Everything on the Plate



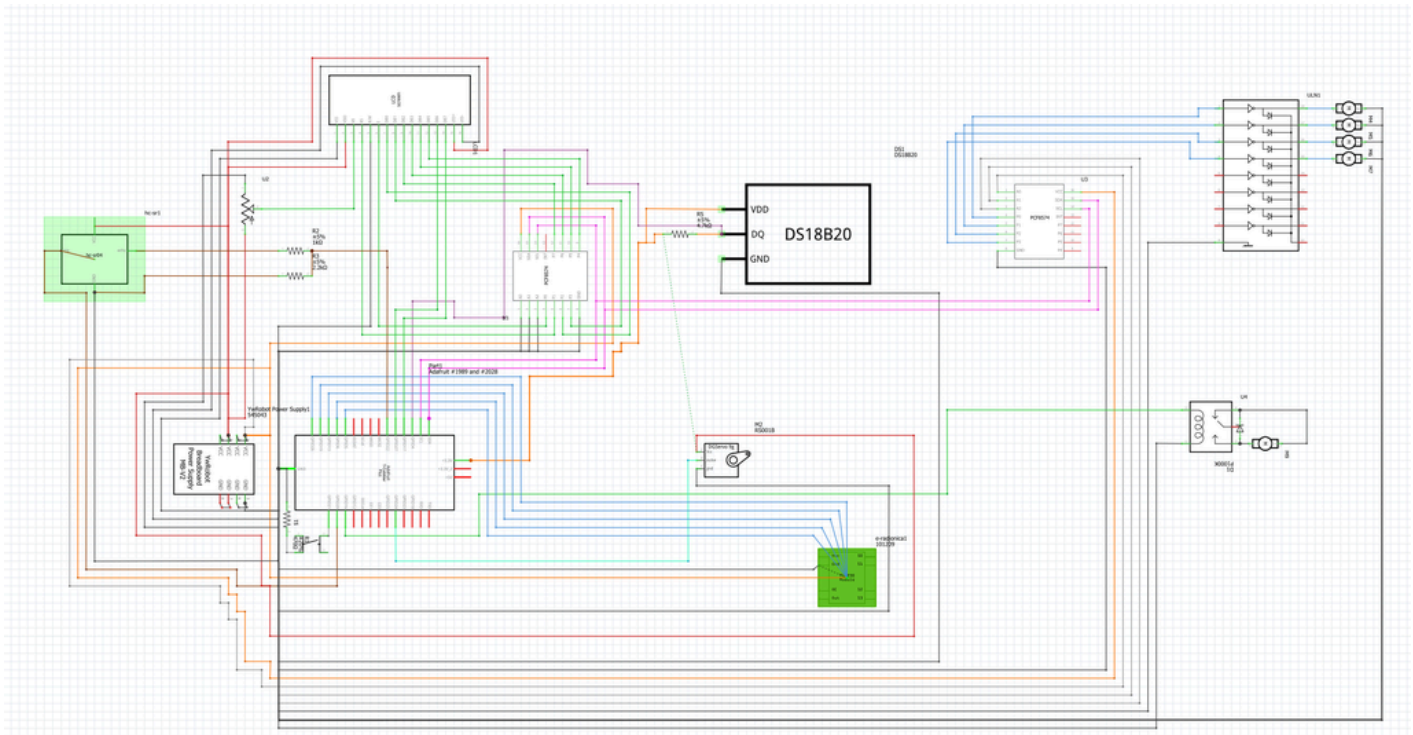
Print the housing panels with PETG-CF filament. Ensure the panels slide over the rods and stay securely in place with magnets.

Mount the LCD display at the bottom of the device. Ensure the display is clearly visible and securely attached.

Step 3: Raspberry Pi Configuration

- Install the Raspberry Pi in the housing.
- Connect the LCD display to the Pi and install the necessary software for displaying recipes and the IP address.

Step 4: Connecting Sensors and Motors



Mount the digital temperature sensor and the ultrasonic sensor in the cup holder.

Attach the asynchronous motor underneath the cup holder for the shaking mechanism.

Connect the pumps and link them to the silicone tubes leading to the bottle holders

Step 5: Software and Programming

- Install Raspbian OS on the Pi.
- Install the necessary libraries for controlling sensors and motors (e.g., RPi.GPIO, Adafruit_Python_DHT).

Step 6: Writing the Code

Write a Python script to control the cocktail shaker. The script should:

- Operate the touchscreen for recipe selection.
- Read sensors to check if a glass is placed.
- Dispense the correct amounts of ingredients.
- Cover the glass and shake the cocktail.
- Display a message when the cocktail is ready.

Step 7: Testing

- Test all electrical connections with a multimeter to ensure there are no short circuits.
- Perform a dry run without ingredients to check the operation of the sensors and motors.

Step 8: Calibration

- Calibrate the pumps to ensure they dispense the correct amounts of liquor.
- Calibrate the ultrasonic sensor to accurately detect if a glass is placed.
- Test the color sensor to ensure the cocktail has the correct color.

Step 9: User Manual

- Place a glass in the holder.
- Select a recipe via the touchscreen.
- Press start and wait until the cocktail is ready.
- Clean the cup holder and pumps regularly to maintain the machine in good condition.

Step 10:

- Regularly check the electronic connections.
- Replace worn parts such as silicone tubes and magnets if necessary.

Step 11: Troubleshooting

Glass not detected: Check the ultrasonic sensor connections.

Pump does not dispense correctly: Recalibrate the pumps.

Shaking mechanism not working: Check the asynchronous motor and replace if defective.