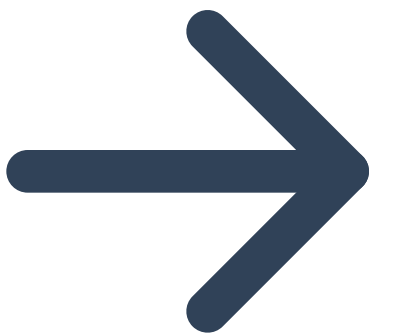




Caffeine Shot Machine

Elevate Your Coffee Experience with Caffeine Shot
Machine: Automation, Personalization, Precision!





Agenda

01. Main Idea

02. Features

3. Motivations

04. Hardware Modules

05. Constraints

06. Future Work



Main Idea

Caffeine Shot is a coffee machine that serves drinks such as Nescafe, coffee, and customized drinks.

Enhanced User Experience

The machine incorporates a user-friendly LCD display, coupled with a keypad interface and a mobile app for the ordering process.

Beyond Coffee

With the Caffeine Shot Machine, customization is king. From adjusting the coffee strength to altering ingredient ratios.

Seamless Dispensing

Featuring an automated cup dispensing and conveyer belt system, eliminating the need for user intervention.



Features



2 ways of ordering drinks

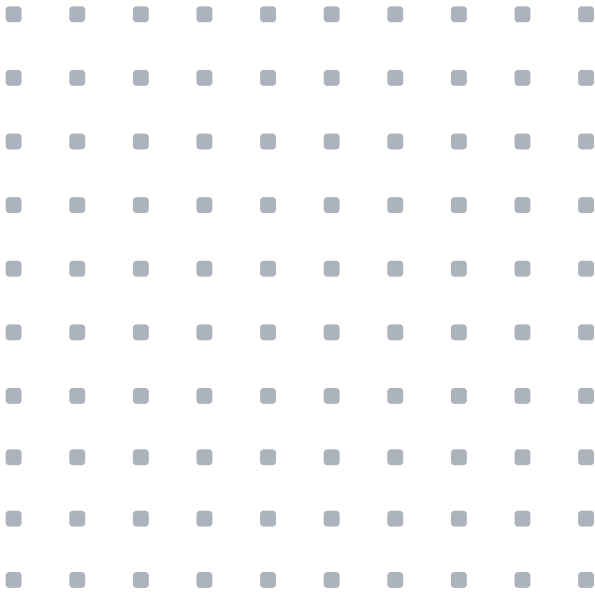
The flexibility of ordering drinks effortlessly via our mobile app or directly through the machine's intuitive LCD, keypad, and RFID card system

Drink Customization

Giving users the choice to craft their own personalized drinks, ensuring a delightful and customized experience tailored to individual tastes.

Small & Large Quantities

Our machine accommodates your desired quantity of the drink that you want.





Features

Temperature Automation

Precise and automatic temperature regulation using the water temperature sensor.

Admin Views and control

The admin can turn on/off the valve for water re-filling in addition to knowing if any of the ingredients is running low.

Seamless Dispensing

The cup dispensing mechanism eliminates user intervention through the whole process of drink preparation.

Payment & Balance

Implementation of electronic wallet payment and balance management for employee usage was incorporated.



Motivations

Customization & Convenience

The aim is to provide users with a convenient and efficient way to prepare and customize their drinks.

Modernization

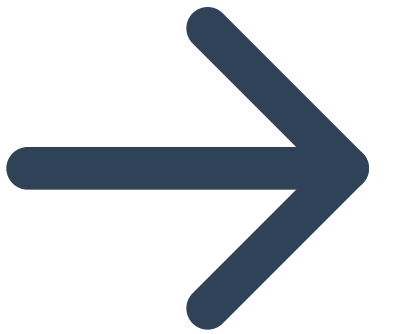
The development of this machine aligns with the trend of incorporating technology and automation into everyday tasks.

Organize employees' coffee machine usage

The machine can track and manage each employee's usage through features like RFID card authentication.



Hardware Modules





Heating Unit



Heater



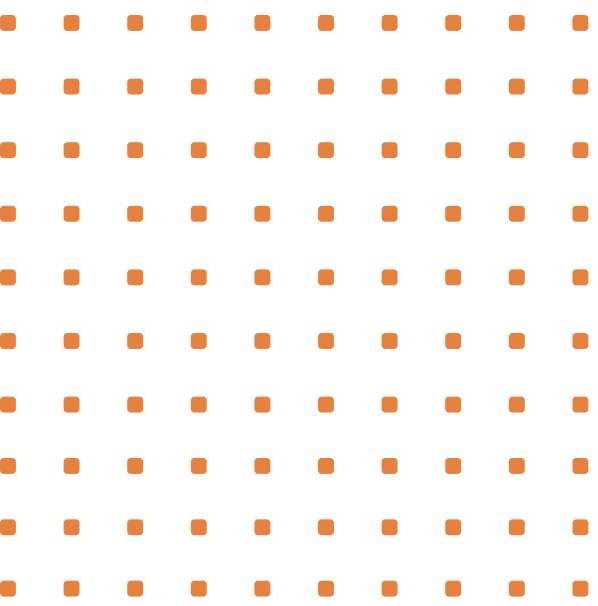
Temperature Sensor



Pump



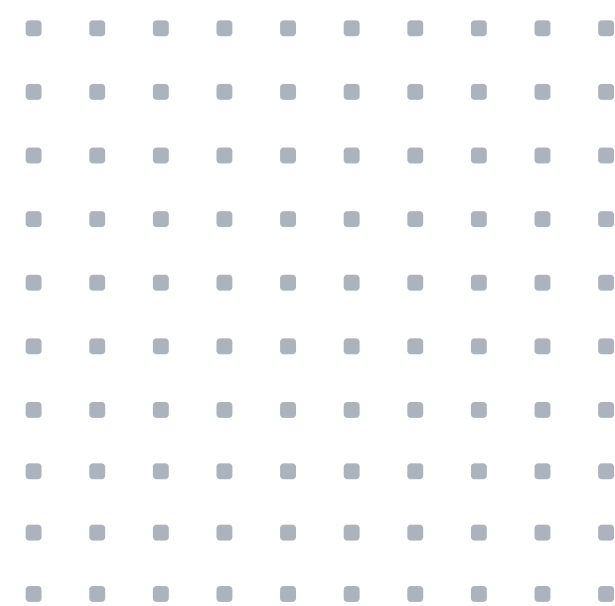
Heating Unit



Solenoid Valve



Relay





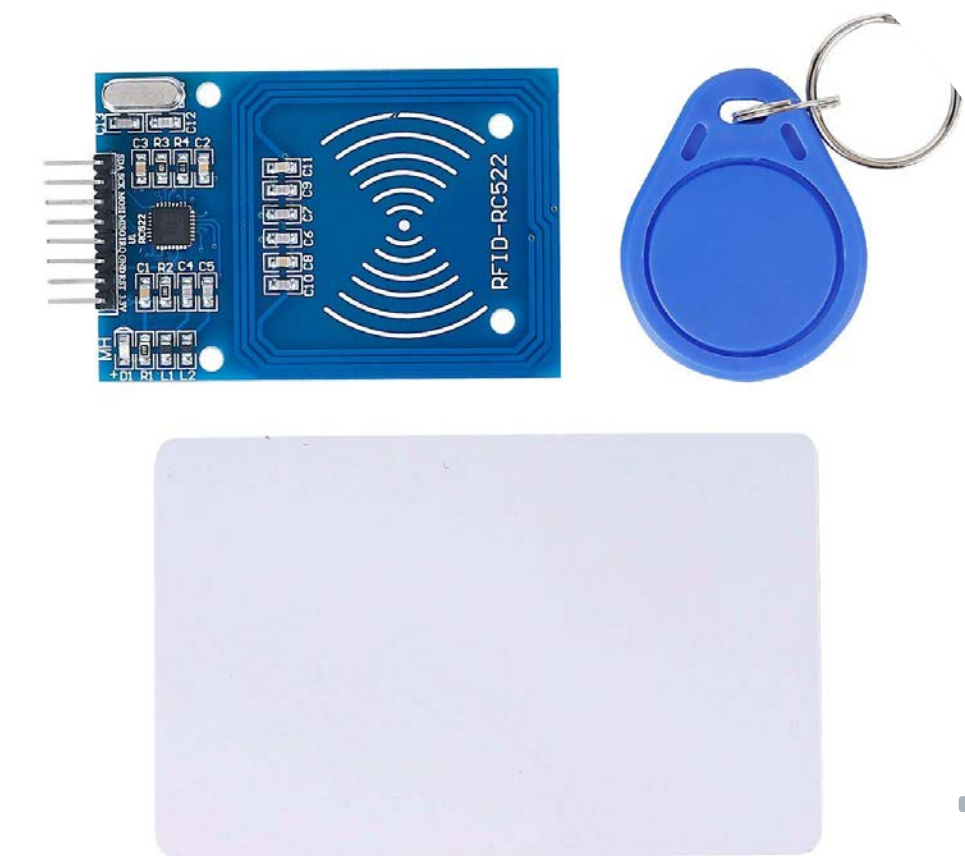
Input/Output Unit



LCD 20x4 I2C



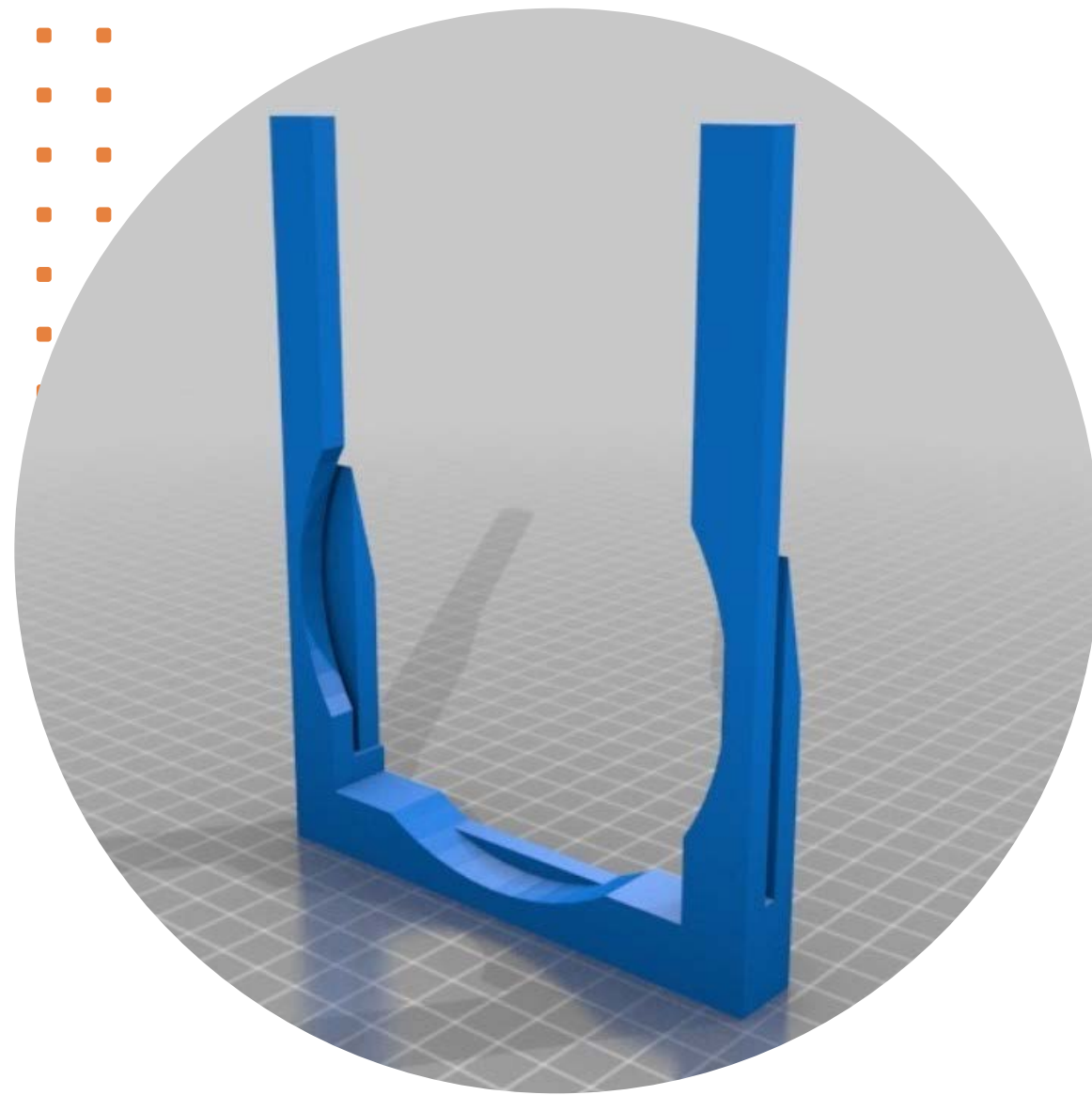
Keypad 4*4



RFID



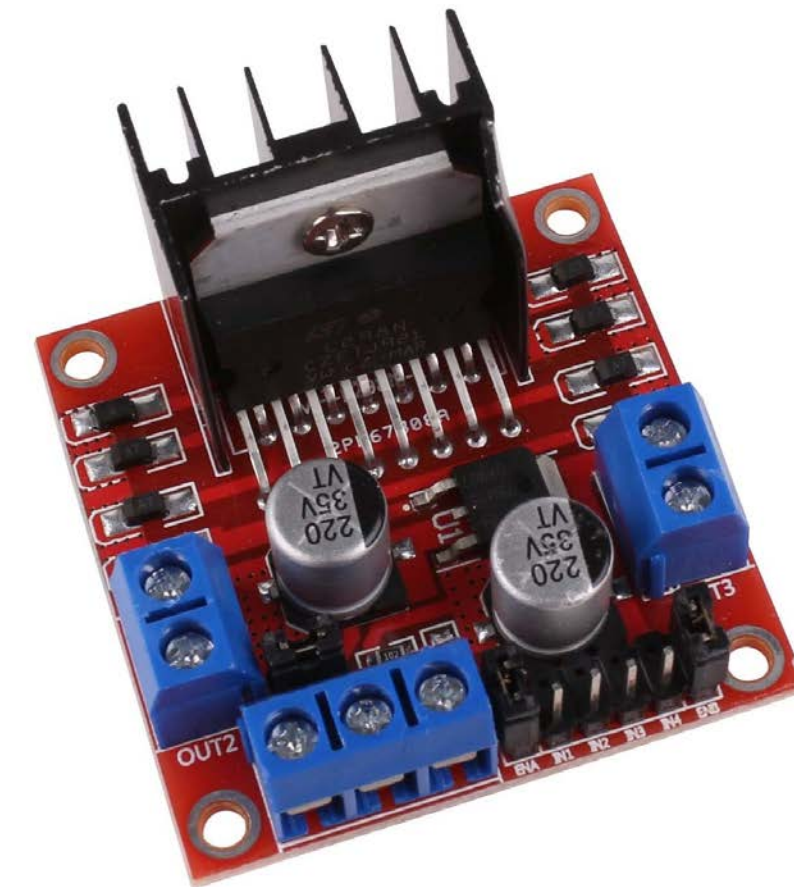
Input/Output Unit



Cup Dispenser



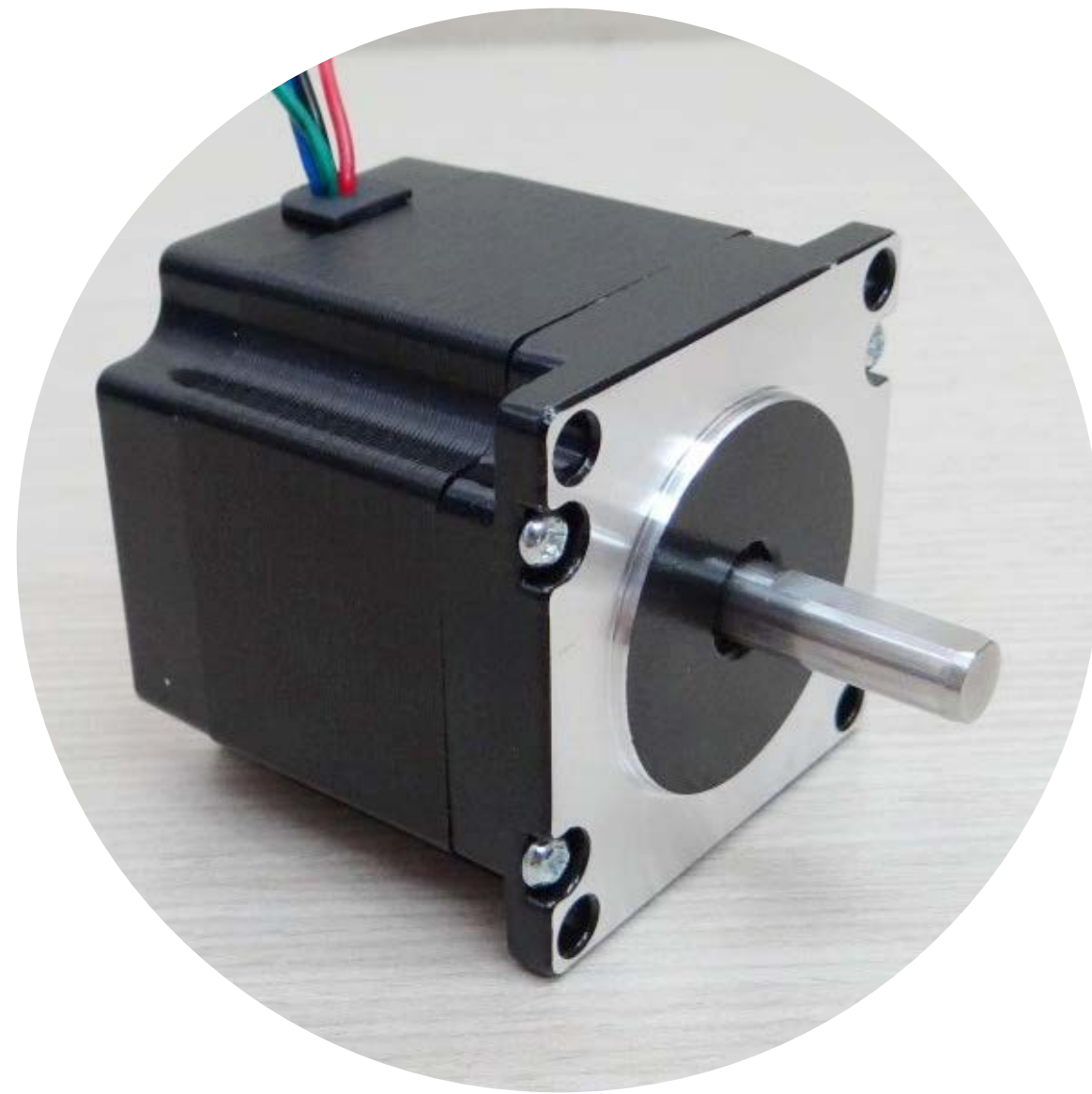
DC motor



H-bridge



Input/Output Unit



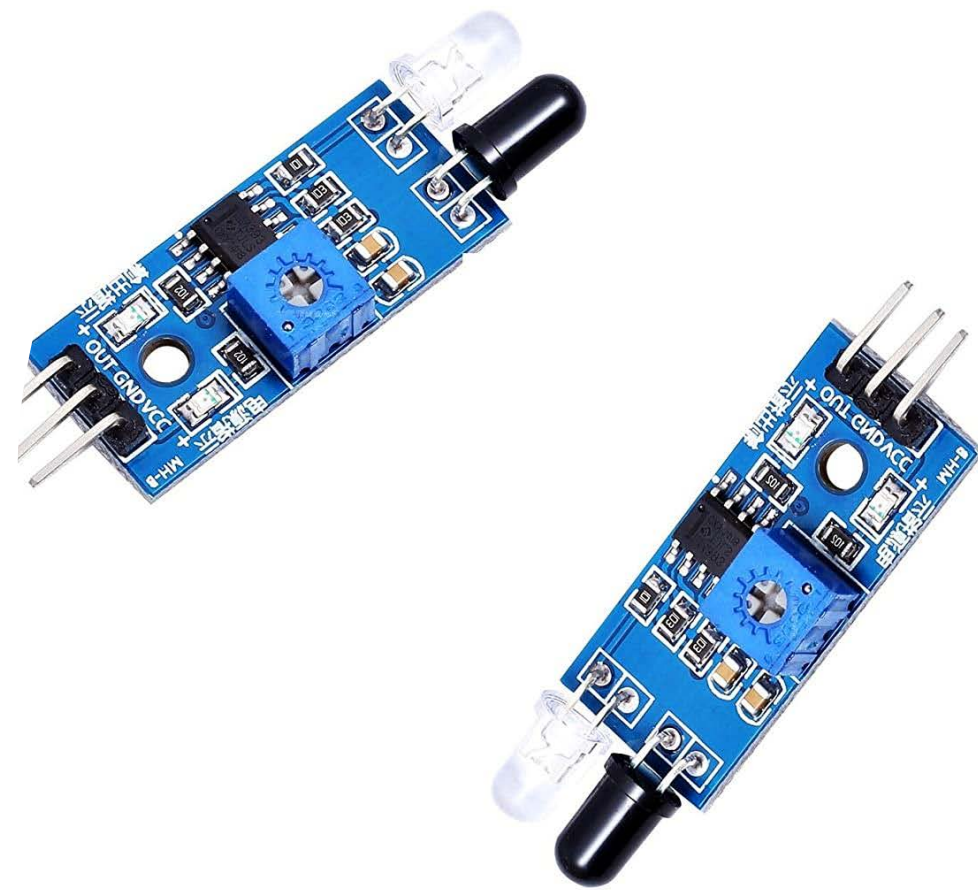
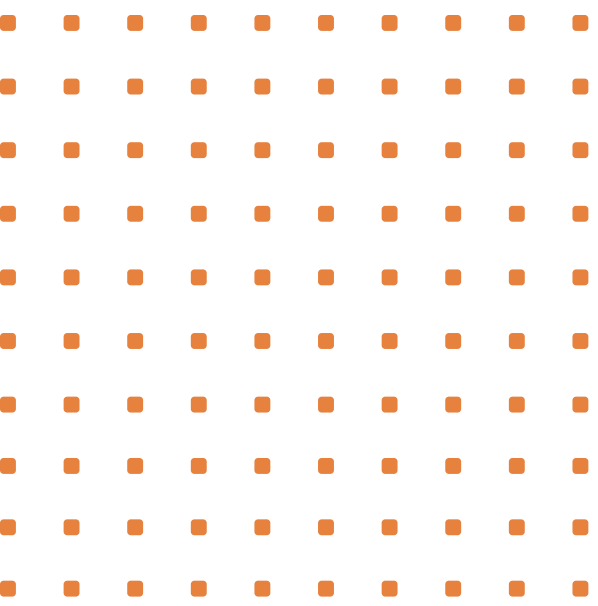
Stepper Motor



Stepper Motor Driver



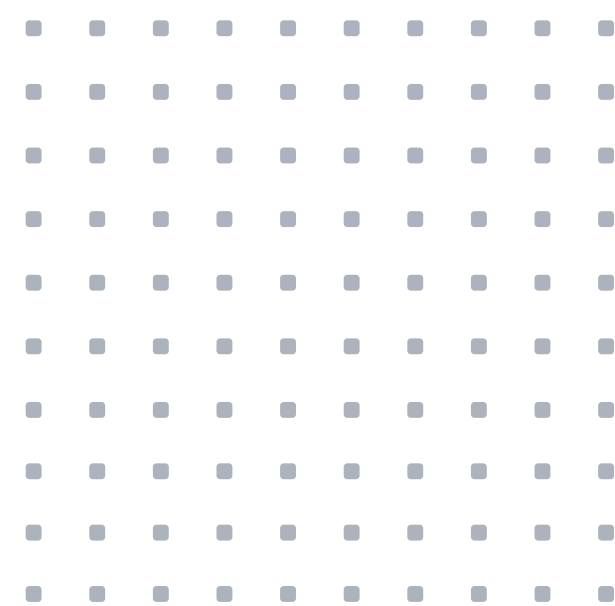
Input/Output Unit



IR sensor



Buzzer

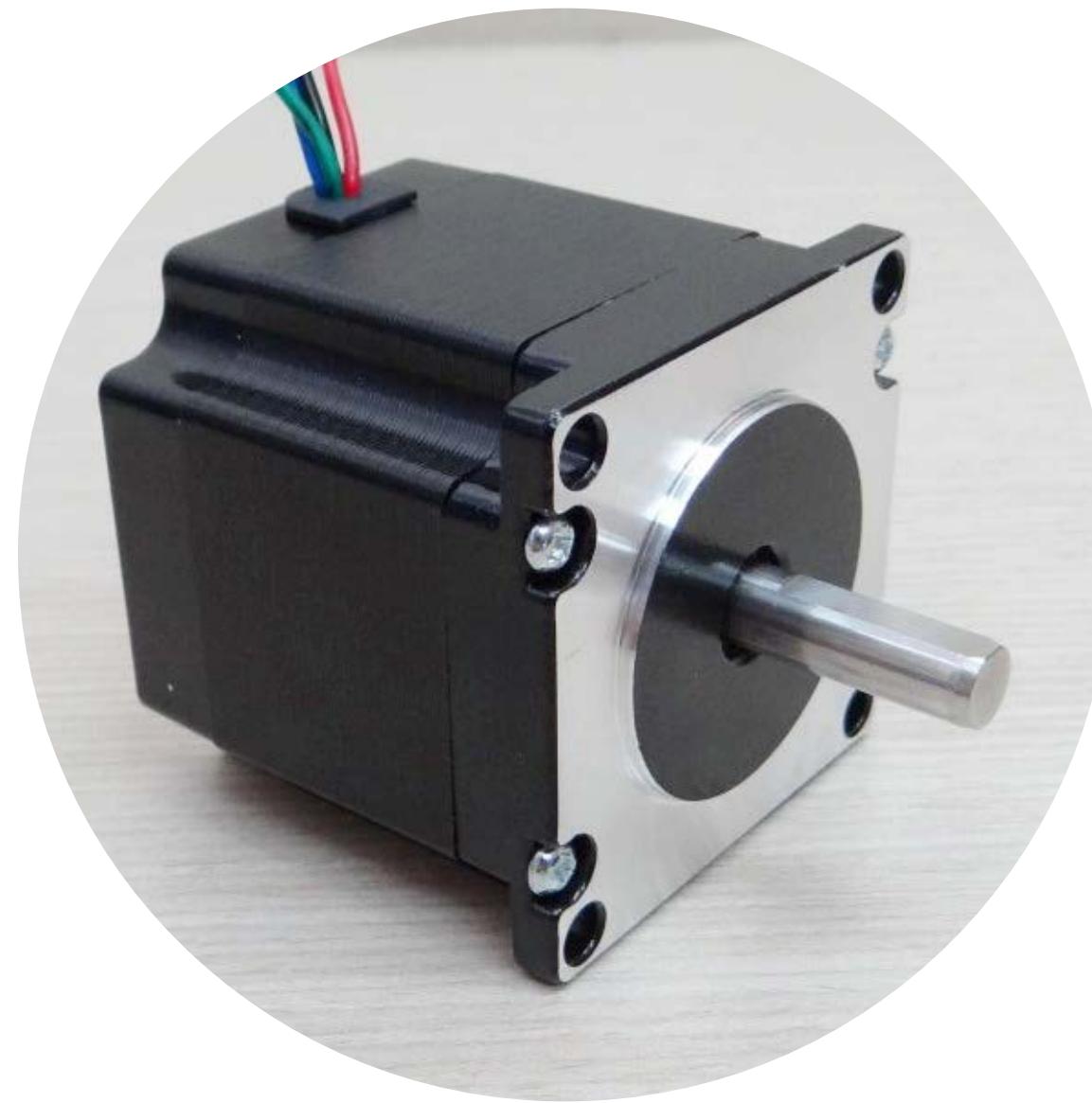




Making Coffee Unit



Servo Motor



Stepper Motor



Ultrasonic Sensor



Making Coffee Unit



Group Head



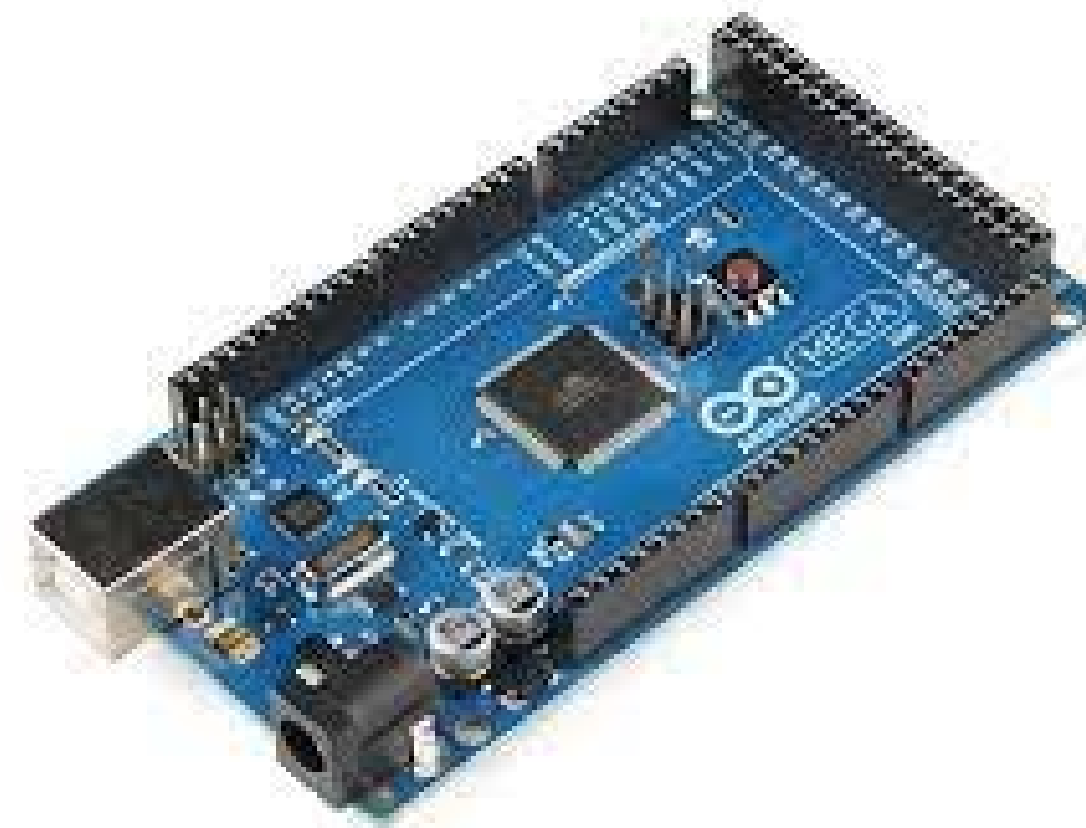
Pump



Relay



Control Unit



Arduino Mega



ESP32



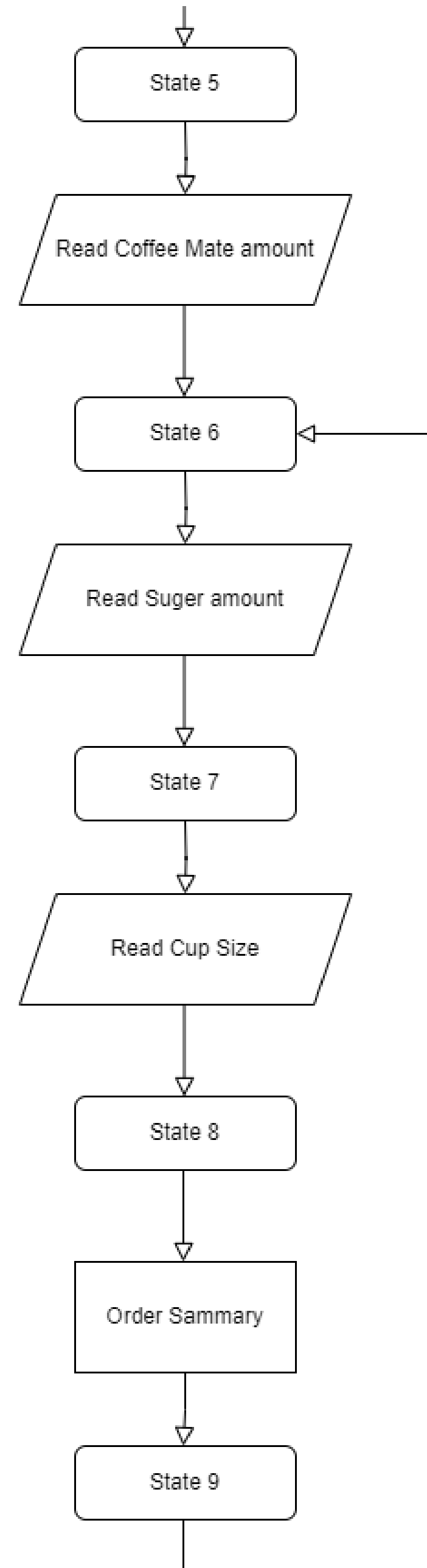
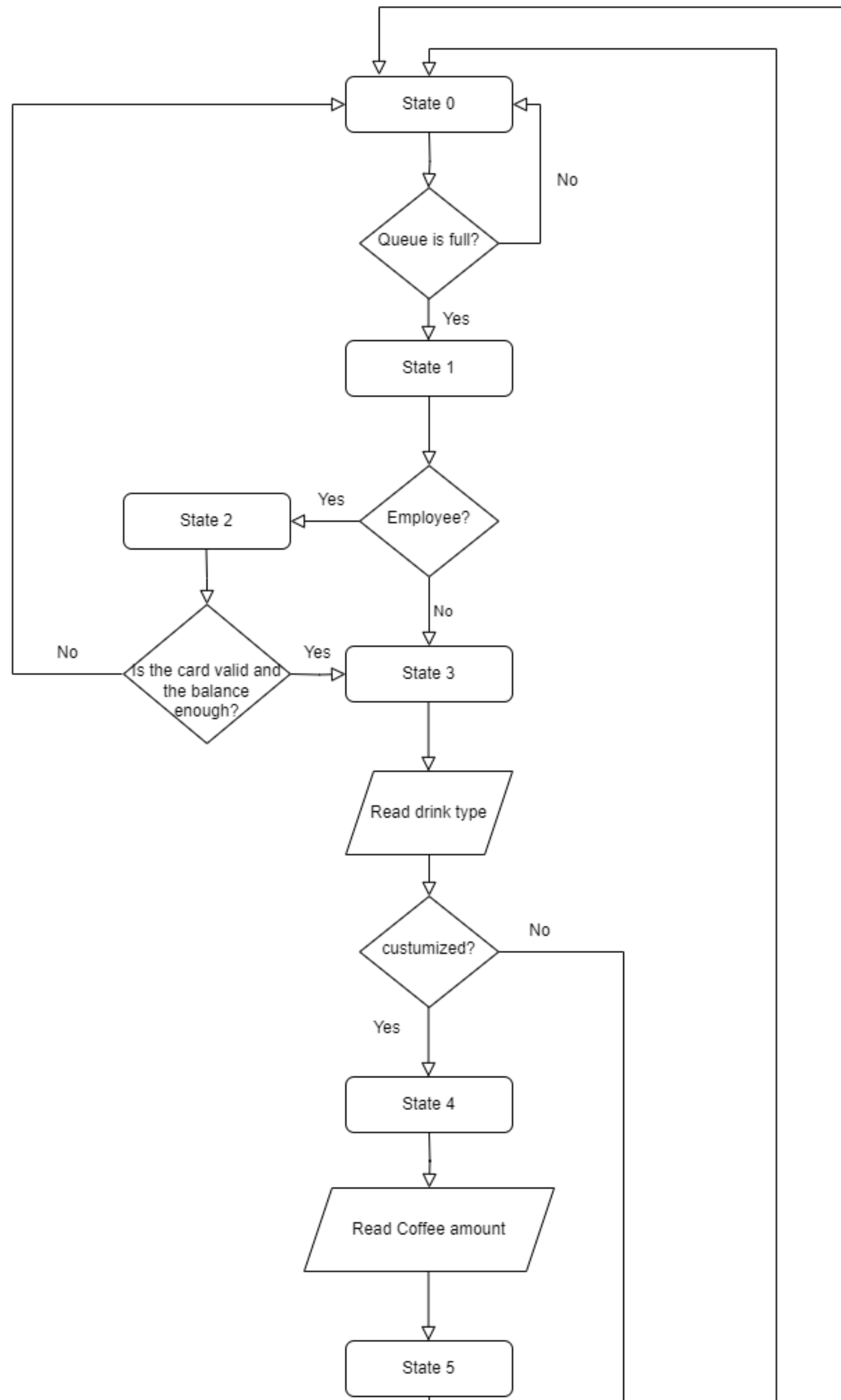
Powering Devices

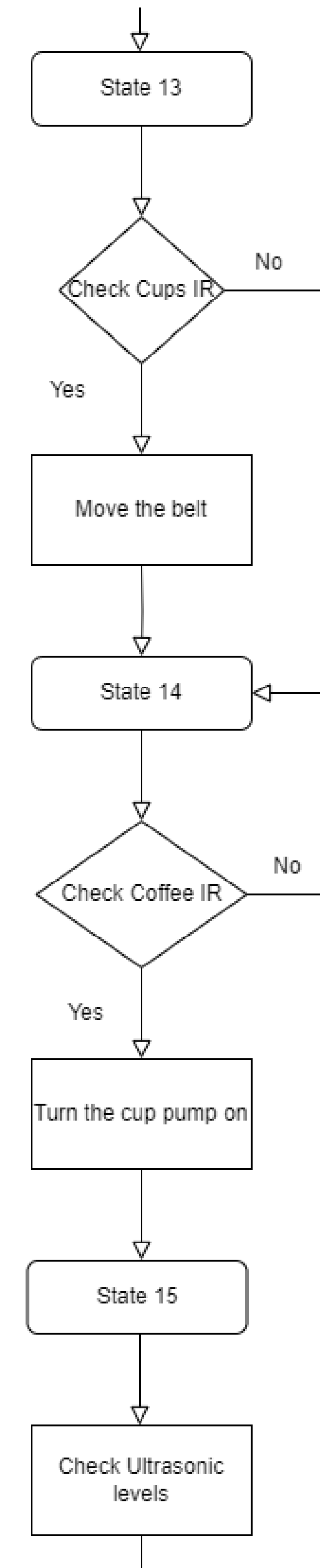
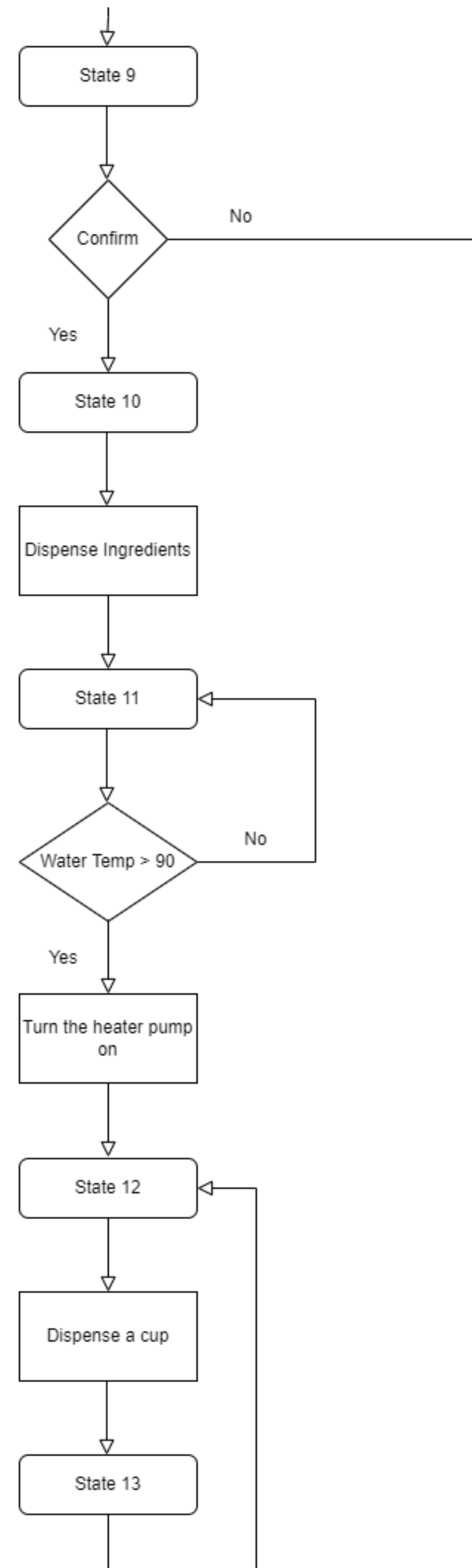


Computer Power Supply



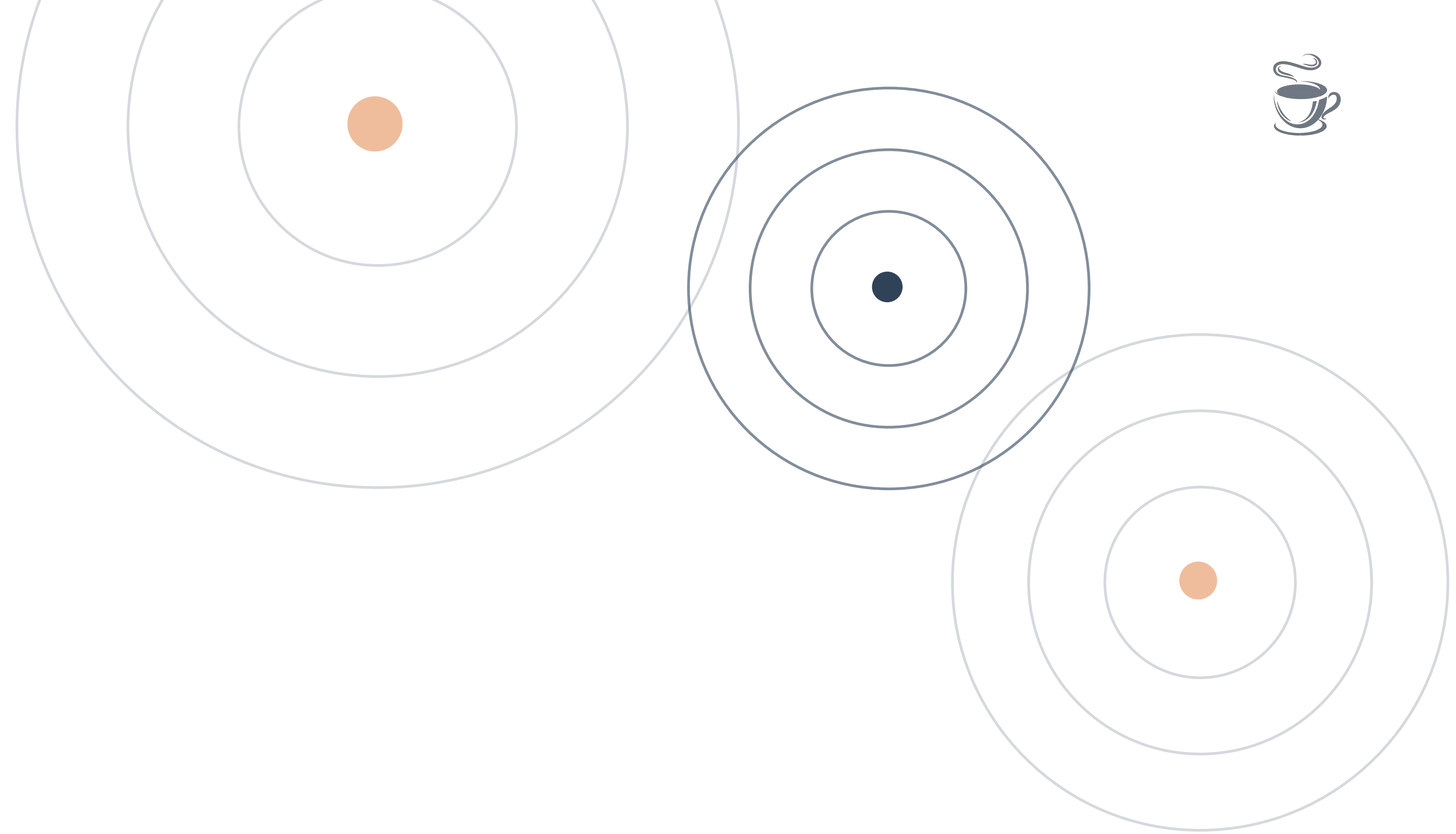
A Step-by-Step Overview







ESP32 Web Server





ESP32 Web Server

Login



ESP32 Web Server

Caffine Shot

Valve:

On

Coffee Sensor: 2.24

Nescafe Sensor: 4.68

Coffee Mate Sensor: 3.88

Suger Sensor: 1.52



ESP32 Web Server

Caffine Shot

Type:

Nescafe

Coffee

Double
Coffee



Constraints

**Pressure
Considerations for
the valve.**

**Interfacing the
Arduino with other
components (relays
and stepper motors).**

**Cup dispensing 3d
printed part.**

**Selection Challenge,
Evaluating Various
Types of Stepper
Motors for Optimal Fit**

**Connecting the Esp32
to the (internet).**



Future Work

Adding GSM to allow the machine to give notifications to the manager.

Making the machine programmable.

Cleaning the group head after every use to ensure the quality of the next drink.

Add a second cup dispenser for larger cup sizes.

Make the valve automatic with a water level sensor.

**Thank
you**

