

# User Interface Overview

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This section describes the **user interface** of the **CoffeeTime** project, responsible for **displaying menus, screens, and handling user interactions** via an **I2C LCD and IR remote control**.

## Components & Pin Configuration

Component	Pin(s)	Function
LCD Display	SDA (4), SCL (5)	User feedback and real-time status
IR Receiver	GPIO X	Remote control input
DHT22 Sensor	GPIO 8	Temperature and humidity monitoring

## Interface Functionalities

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### Initial Screen & Monitoring:

- Displays machine status, coffee and water levels.
- Shows real-time temperature and humidity using the DHT22 sensor.
- Displays the current time using the RTC module.

### Functions:

- `display_initial_screen()`: Shows the startup screen.
  - `display_temperature_humidity()`: Updates ambient temperature and humidity.
  - `display_clock()`: Updates and displays the current time.
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### Coffee Selection & Preparation:

Guides the user through coffee customization via the **IR remote control**.

### Functions:

- `ask_number_of_cups()`: Asks for the number of cups to be prepared.
- `ask_when_to_prepare()`: Asks whether to prepare **immediately or schedule**.

## Remote Control Handling:

Receives and interprets commands from the IR remote.

Functions:

- `ir_callback()`: Processes button presses.
  - `get_key_name(command)`: Converts IR signals into **meaningful commands**.
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This section ensures **user-friendly interaction** with the CoffeeTime system, enabling **menu navigation, coffee preparation, and system monitoring** via the LCD and IR remote control.