# Manual for Heating Control Panel Application on Raspberry Pi

Welcome to the Heating Control Panel Application Manual. This guide will assist you in operating the Heating Control Panel application deployed on a Raspberry Pi. This application is designed to control and monitor heating elements through a user-friendly graphical interface.

## Starting the Application

To start the Heating Control Panel application, you'll need to open the terminal on your Raspberry Pi and run the application script. Here are the detailed steps:

## 1. Opening the Terminal:

Turn on your Raspberry Pi and log in if required.

Open the terminal window:

If you're using the Raspberry Pi Desktop, you can find the terminal in the Menu under Accessories.

Alternatively, you can use the keyboard shortcut Ctrl + Alt + T to open the terminal directly.

## 2. Running the Application:

Here are the steps to run the Application.

1. Ctrl + Alt + T
2. Type cd desktop
3. In the same terminal screen, type python3 final.py

The GUI should open up.

## 3. Understanding the GUI:

Upon launching, you will see the main control panel with various buttons and displays.

The GUI is divided into different sections for MOSFET control, temperature monitoring, heating level adjustment, and personal data entry.

## Troubleshooting

This section provides solutions to common problems that you might encounter while using the Heating Control Panel application.  
**Issue: Remote I/O Error**

When operating the Heating Control Panel application, you might encounter an error message stating "Remote I/O Error". This error typically occurs during I2C communication with connected devices like temperature sensors. Here's how you can troubleshoot this issue:

Inspect I2C Address:

Each I2C device must have a unique address. Ensure that no two devices share the same address unless they are designed to do so.

Use the command i2cdetect -y 1 in the terminal to list all connected I2C devices and their addresses. Verify that the addresses match the configuration in your script.