Solar Cell Test Bench Project

Analyzing Voltage and Current Behavior under Varying Temperatures

Siddharth Patel

January 20, 2025

Overview

This document presents the circuit diagram instructions and connections for the **Solar Cell Test Bench Project**. The project aims to analyze the voltage and current behavior of a solar cell under varying temperatures.

GitHub Project: Solar Cell Test Bench Repository
GitHub Author: Siddharth Patel

List of Components

The table below lists the components and their connections for the Solar Cell Test Bench Project.

Table 1: Component Connection Table

Component	**5V**	**GND**	**Digital Input**	**SDA**	**SCL**
Relay (Heater)	5V	GND	4	–	–
Relay (Voltage to Current)	5V	GND	8	–	–
Push Button (Switch to Current)	5V	–	7	–	–
Current Sensor	5V	GND	A0	–	–
Voltage Sensor	5V	GND	A1	–	–
DHT Temperature Sensor 1	5V	GND	2	–	–
DHT Temperature Sensor 2	5V	GND	3	–	–
LCD 20x4 (I^2C)	5V	GND	–	SDA	SCL
LED Panel	12V	GND	–	–	–
Heating Element	Vin	GND	–	–	–
Solar Panel	See Other	–	–	–	–

Circuit Diagrams

The following diagrams represent the circuit configurations:

1. Relay Configuration with Heating Element and 12V Power

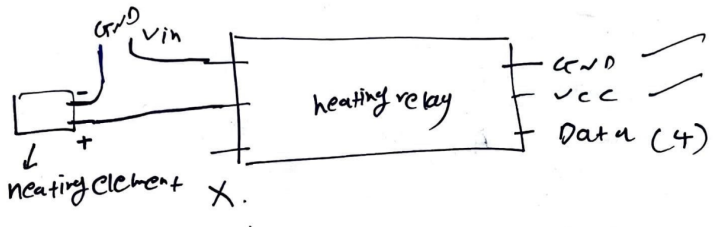

Figure 1: Relay Configuration with Heating Element and 12V Power

2. Relay Configuration with Solar Panel and Current/Voltage Sensors

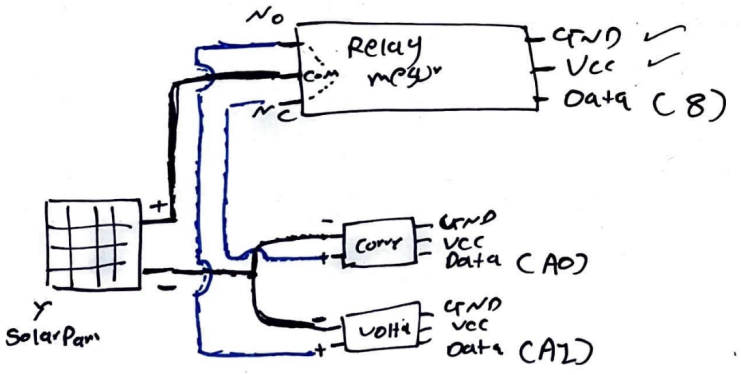

Figure 2: Relay Configuration with Solar Panel and Current/Voltage Sensors