User Manual

A Setup Guide from Scratch

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Preface

Purpose

The purpose of this manual is to allow a person to easily set up and begin using our system. Topics covered include everything from installing an operating system on a Raspberry Pi to using our provided web interface to adjust voltage and frequency output of the device. The design document for the project is also attached for better understanding of the functionality of the system as a whole.

Structure of Manual

This document lay's out the setup process from beginning to end. Each step of the process is described in enough detail that the process may be accomplished without the use of other reference materials. No knowledge of linux systems, Raspberry Pi, or Apache Webserver is assumed. At the end of this manual is attached the design document.

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Materials

1.1 Raspberry Pi

The Raspberry Pi is an inexpensive computing device. The operating system for this device is installed on an SD card. The Printed Circuit Board containing all of the hardware for this project will be connected to the GPIO pins on this device.

1.2 Printed Circuit Board

Board containing our frequency and voltage regulating hardware. The design document covers the hardware included on this PCB in great detail. An overview of the functionality will be given here as a summary. All that must be understood for operation of the system is the inputs and ouputs of this hardware component. The imputs are the GPIO pins on the provided Raspberry Pi. The outpus are wires which may be soldered on to the PCB at the locations described. Circuit diagrams of the PCB are included in the attached design document.

1.3 Software

There are a few components to our provided software. Included among these is a startup script which can be run on a fresh install of Rasbian Linux operating system. This startup script will create all necessary files and make all necessary changes to the device. After the startup script is run, the system should be fully operational and the user should be able to control it from a web browser.

In the case that combatibility issues between the script and future versions of Rasbian Linux operating system arrise in the future, a fully detailed guide is provided to enable manual setup. We will describe the necessary

software packages used in this setup, how to acquire these packages, and how to configure them similar to the way we have done.

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Setup and Configuration

2.1 Acquiring a Raspberry Pi

The Raspberry Pi is a small computing device which may be purchased online for less than $50. Other items which may need to be purchased along with the Raspberry Pi include:

1. micro usb power cable
2. protective case
3. TODO

2.2 Installing Rasbian

Rasbian is a distribution of linux which has very light weight system requirements. The operating system is optimized to run on the raspberry pi, and contains many useful packages reinstalled.

2.3 Networking the Raspberry Pi

In order for the Raspberry Pi to be controlable from the provided web interface, the device must be connected to the same network as the controlling computer.

2.4 Configuring the Raspberry Pi - Configure Script

NOT YET IMPLEMENTED Simply run the provided script as root user. Place the folder containing cgi-bin, www, and setup_script.bash whereever you want the webserver to be hosted on the raspberry pi. After this, enter the following command *./setup_script.bash.*

2.5 Configuring the Raspberry Pi - Manual Configuration

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Using the Device

3.1 Physical Connections

3.2 Using the Web Interface

4

Troubleshooting

5

Design Document

Table 5.1: Sample table

S. No.	Column#1	Column#2	Column#3
1	50	837	970
2	47	877	230
3	31	25	415
4	35	144	2356
5	45	300	556

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Lorem ipsum list:

- *Mauris sit amet nulla mi, vitae rutrum ante.*
- *Maecenas quis nulla risus, vel tincidunt ligula.*
- *Nullam ac enim neque, non* dapibus *mauris.*