Raspberry PI Data Collection Project

Project done by:	William Brady-Diaz
	☑
Last date updated	May 19, 2024
On this page	

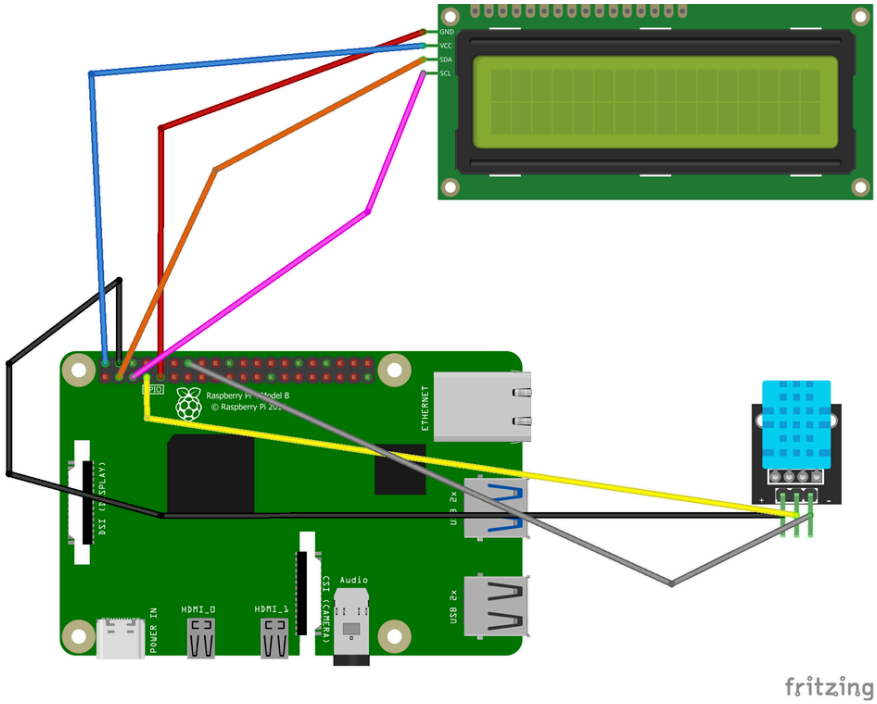
Project Overview

Introduction
The goal of this project is to use a raspberry pi to collect temperature data, save it into a mysql database and create a program in C that query's into the database. The code should allow the user to retrieve the Min, Max, average temperature and/or humidity over a specified time period.

Materials/Software needed

- Raspberry PI (4B preferred)
- Temperature Sensor
- LCD Panel : Installation instructions
- 7 Female to Female Jumper Wires
- MYSQL/MariaDB : Installation Instructions
- Codeblocks IDE : Installation Instructions
- WiringPI Library : Installation Instructions

📐 Fritz Diagram



Step 1: Creating the Database (Check box After each step completed)

- [ ] mysql -u your_username -p
- [ ] create your_database_name if not exists your_database_name;
- [ ] show databases;
- [ ] use your_database_name
- [ ] create table your_table_name(id int, time TIMESTAMP DEFAULT CURRENT_TIMESTAMP,humidity float, temp float);
- [ ] show tables and your_table_name should appear if not follow each step carefully and review installation steps

⚠ If you change the variable names in the creation of the table you will need to change lots of code, I suggest leaving the variable names how they are unless you are advanced.

Step 3: Connecting LCD

- [ ] Follow diagram above to connect LCD to Raspberry PI correctly
- [ ] Make sure Installation was done correctly from the Materials/Software section
- [ ] Extra Installation instructions

⚠ Make sure Wiring PI is installed correctly, see instructions in Materials/Software section!

Step 3: Connecting Sensor

- [ ] Follow Diagram above to connect sensor to Raspberry pi
- [ ] Quick start installation guide
- [ ] Additional Instructions

Step 4: Collecting Data

- [ ] Create new CodeBlocks project in C
- [ ] Copy the code in the collection section
- [ ] Edit this part of the code to your information (lines 133 - 139)

```
    char *server = "localhost";

    char *user = "your_username";

    char *password = "your_password";

    char *database = "your_database_name";

```

- [ ] Edit this part of code to your table name line 244

```

sprintf(query, "INSERT INTO your_table_name VALUES (0,NOW(),%f, %f)", humid2, temp2); // line 244

```

- [ ] Run code and if there are any errors make sure to check installation instructions were followed carefully

Make sure to set your LCD address to the correct value, see LCD installation instructions in Materials/Software section for more information

```
int LCDAddr = 0x your_LCD_Address; //line 23
```

In your C file,

Under Project/Build Options/Compiler settings/Other Compiler Options, specify

`mysql_config --cflags` (must use back ticks)

Under Project/Build Options/LInker settings/Other Linker Options, specify

`mysql_config --libs` (must use back ticks)

Save all, restart project and it works. This now compiles in Codebase!

Step 5: Retrieving Data

- [ ] Create new CodeBlocks project in C
- [ ] Copy the code in the data section
- [ ] Edit this part of the code to your information (lines 24 - 30)

```
    char *server = "localhost";

    char *user = "your_username";
```

```
4
5     char *password = "your_password";
6
7     char *database = "your_database_name";
```

- [ ] Run code and if there are any errors check all components were installed correctly in the reference above.

⚠️ In your C file,

Under Project/Build Options/Compiler settings/Other Compiler Options, specify

`mysql_config --cflags` (must use back ticks)

Under Project/Build Options/LInker settings/Other Linker Options, specify

`mysql_config --libs` (must use back ticks)

Save all, restart project and it works. This now compiles in Codebase!

🗂️ Video Demonstration

- Video Link