Wire Reader App User Manual

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https://github.com/Key2dev/

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1. Introduction

WireReaderApp is a Python-based application designed to read and visualize temperature data from 1-Wire sensors. It provides real-time temperature monitoring, data recording, and analysis features.

2. Installation

To install WireReaderApp:

1. Ensure you have Python 3.7 or later installed on your system.
2. Clone the repository or download the source code.
3. Navigate to the project directory in your terminal.
4. Install the required dependencies by running:

```
pip install -r requirements.txt
```

3. Getting Started

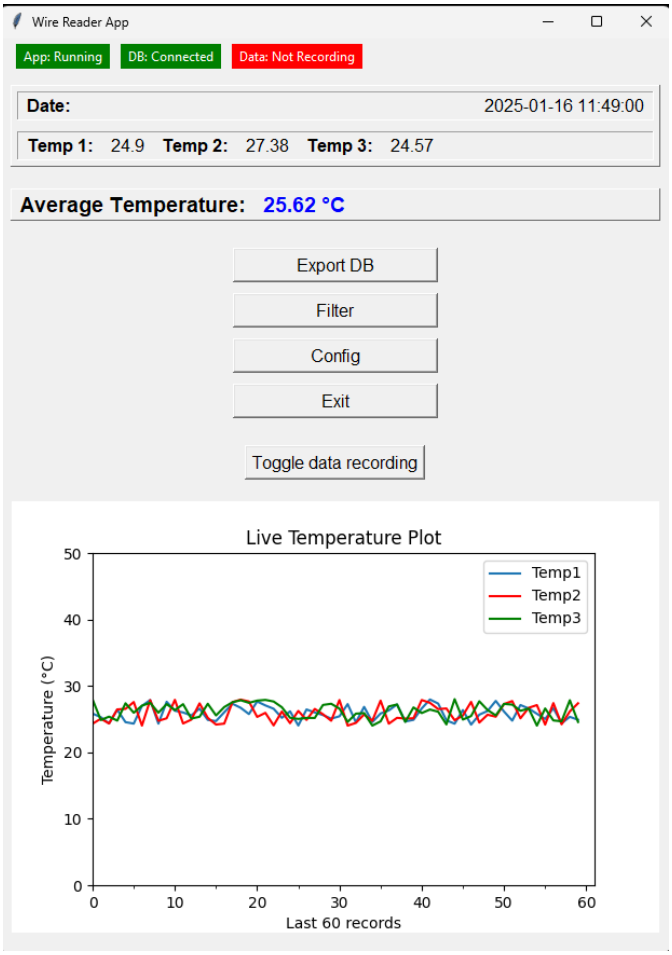
To start the application:

1. Open a terminal or command prompt.
2. Navigate the project directory.
3. Run the following command:

```
python wire_reader_app.py
```

4. Main Interface

Upon launching the application, you will see the main interface:



[Screenshot 1: Main interface of WireReaderApp]

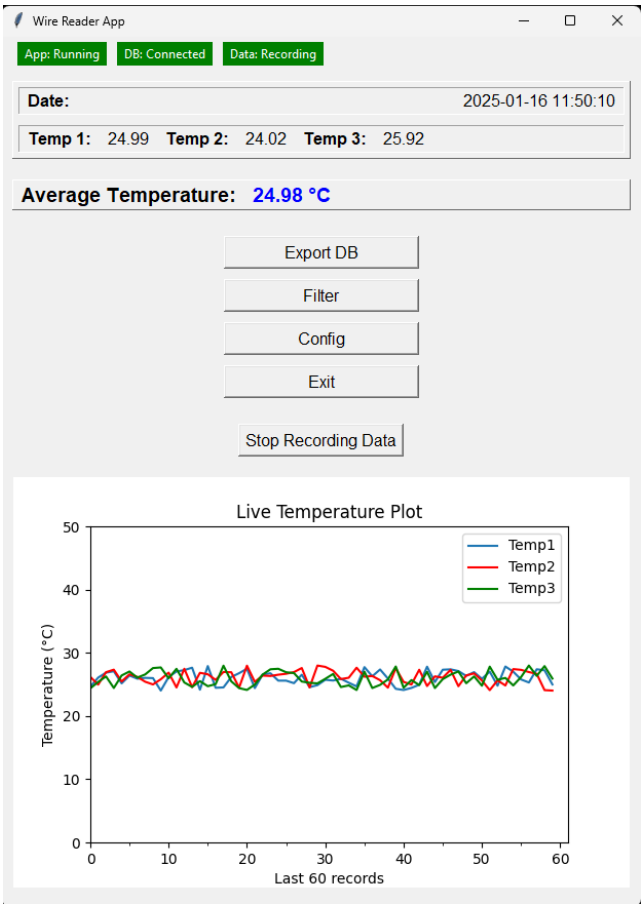
The main interface consists of:

- Time display
- Temperature readings for three sensors
- Average temperature calculated from readings mentioned above
- Live temperature graph
- Control buttons
- Status indicators

5. Recording Data

To start recording data:

1. Make sure the App is connected to a database.
2. Click the "Toggle data recording" button.
3. The button text will change to "Stop Recording Data".
4. The "Data" status indicator will turn green and display "Data: Recording".



[Screenshot 2: Interface showing active data recording]

To stop recording:

1. Click the "Stop Recording Data" button.
2. The button will revert to "Toggle data recording".
3. The "Data" status indicator will turn red and display "Data: Not Recording".

6. Exporting Data

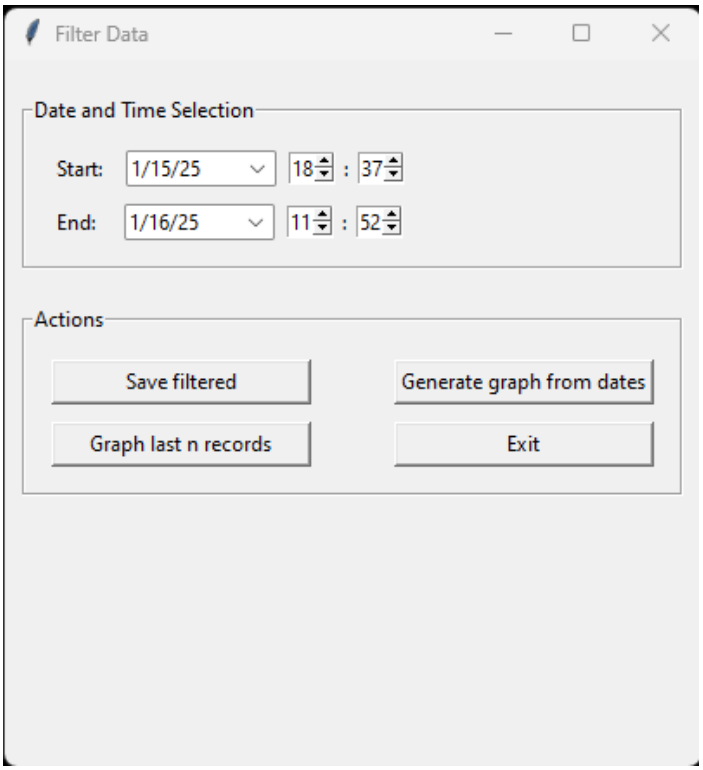
To export recorded data:

1. Click the "Export DB" button.
2. The application will export all data from the database to a CSV file in the location specified in your configuration.
3. A confirmation message will appear in the terminal.

7. Filtering Data

To filter the recorded data:

1. Click the "Filter" button.
2. A new window will open with filtering options.



[Screenshot 3: Filter submenu window]

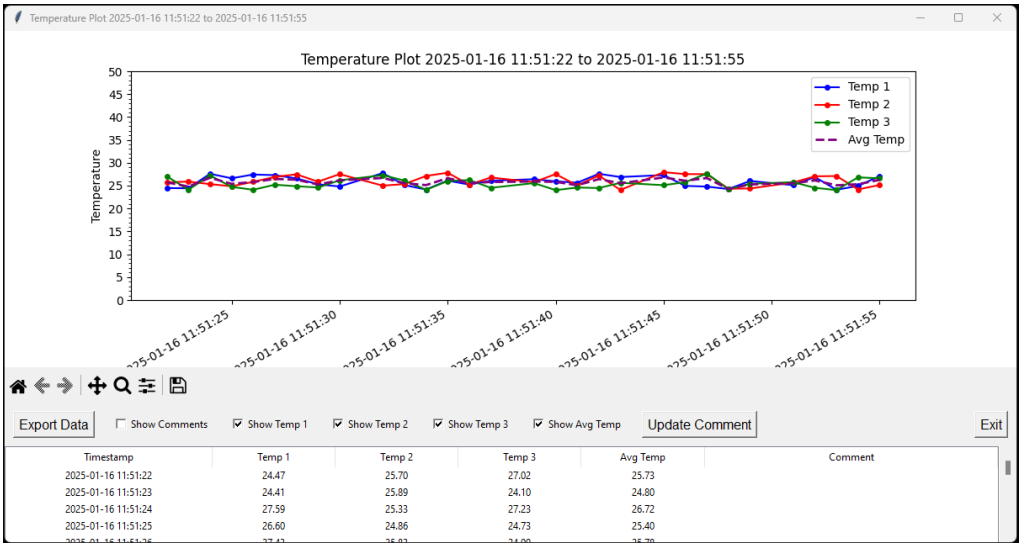
In the filter submenu, you can:

- Select date ranges.
- Generate graph from selected dates.
- Save CSV data between date ranges.
- Generate graph from last n records.

8. Interactive Plot

1. Opening the Interactive Plot

a. From the main application window, click on the "Filter" button.
b. In the Filter submenu, click “Generate graph from dates” or “Graph last n records”
c. The Interactive Temperature Plot window will open, displaying temperature data for the selected time range.



[Screenshot 4: Interactive plot window]

2. Understanding the Plot

a. The graph shows temperature readings from three sensors over time.
b. Each sensor's data is represented by a different colored line.
c. Average temperature is represented by the dotted line.
d. The x-axis represents time, and the y-axis represents temperature.

3. Interacting with the Plot

a. Zooming and Panning
    i. Use the navigation toolbar at the bottom of the plot for zooming and panning.
    ii. Click on the magnifying glass icon to zoom in on a specific area.
    iii. Use the pan icon (four-way arrow) to move around the plot.
    iv. The home icon resets the view to the original scale.
b. Hovering Over Data Points
    i. Move your mouse over the plot to see detailed information.
    ii. A tooltip will appear showing the exact time and temperature for each sensor at that point.

c. Adding Comments
    i. Click on any data point to add or edit a comment.
    ii. A dialog box will appear where you can enter or modify the comment.
    iii. Click "OK" to store the comment or "Cancel" to discard changes.
d. Viewing Existing Comments
    i. Comments are displayed as markers on the plot.
    ii. Hover over a comment marker to view its content.

4. Additional Features

a. Saving Filtered Data
    i. Click the "Export Data" button to export the current view.
    ii. Choose the location and filename for your CSV file.
    iii. The exported file will include timestamps, temperature readings, and comments.
b. Closing the Plot
    i. Click the "Exit" button or the window's close icon to exit the plot view.

5. Tips

a. Use the zoom feature to examine specific time periods more closely.
b. Add comments to mark important events or observations.
c. Export data regularly to keep records of your analysis.

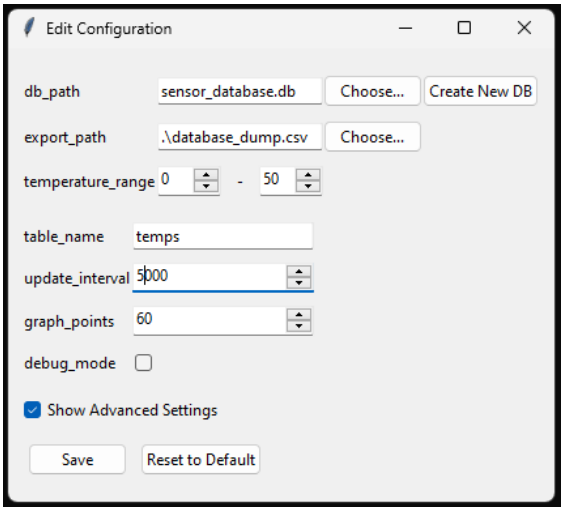
6. Troubleshooting

a. If the plot does not load, check your date range selection.
b. Ensure your database is properly connected and contains data for the selected period.
c. If comments do not save, verify your write permissions for the database.

9. Configuration

To access and modify the application settings:

1. Click the "Config" button.
2. A configuration window will open.



[Screenshot 5: Configuration window]

In the configuration window, you can modify:

- **Database path**
  - connect to existing database or create a new one.
- **Export path**
  - sets default export path and name.
- **Table name**
  - sets table name from database schema.
- **Graph points**
  - number of last n records displayed on live graph in main app window.
- **Temperature range**
  - Temperature axis limits in Celsius both in live graph and interactive graph generated in Filter submenu.
- **Update interval**
  - Time in milliseconds between app refreshes (Changes data check and insertion frequency)
- **Debug mode**
  - Used only for testing purposes. If checked, temperature readings are generated randomly.

After making changes, click "Save" to apply the new configuration. **All settings except Update Interval will take effect after app restart.**

10. Troubleshooting

- If the "DB" status indicator is red, check your database connection and path in the configuration.
- If temperature readings are not updating, ensure your 1-Wire sensors are properly connected.
- For debugging, you can enable the debug mode in the configuration, which will use random temperature values.

11. Exiting the Application

To close the application:

1. Click the "Exit" button or close the window.
2. The application will safely close all connections and exit.