

# Revitalizing Solar Insights: A Dashboard for West Tennessee Solar Farm

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# Introduction

## Motivation

Can we build an interactive dashboard to improve research and education accessibility, optimize power production, and advance sustainable energy practices?

# R-Shiny & Functionalities

- 1 Provides an easier and more integrated way to creating web-based dashboards without needing to learn web development languages like HTML.
- 2 Provides Real-Time Data Visualization, Interactive Maps, Sensor Information Panel, Historical Data Analysis, User-Friendly Interface, Responsive Design, Dashboard Hosting and Export Data.

# List of Technologies

- ① **MySQL**: stores and manages sensor data in a table containing minute by minute data separated by data for each sensor.
- ② **Python**: Retrieves data from the MySQL database and updates a Google Drive CSV for data simulation.
- ③ **R-Shiny**: Develops an interactive dashboard for data visualization.
- ④ **Shinyapps.io**: Hosts a web server to allow users from all major operating systems to be able to access the dashboard.
- ⑤ **Google Cloud Console**: Safeguards API information for enhanced data security.

# Project Goals

- ① **Streamlined Data Pipeline**
- ② **Continuous Data Maintenance**
- ③ **R-Shiny Dashboard:** encompasses all of the aforementioned functionalities.
- ④ **Cross-Platform Accessibility:** Ensure inclusivity by designing a webpage that accommodates diverse laptop operating systems, guaranteeing a seamless user experience.

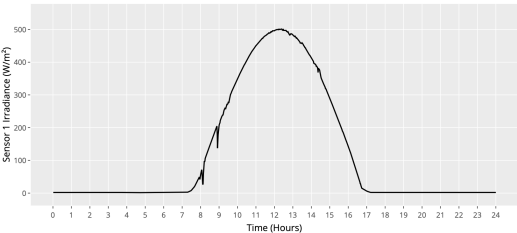
# Dashboard Demo

## West Tennessee Solar Farm



Live Data   **Daily Data**

Sensor 1 Plot



### Tomorrow's Forecast

Date	Metric	Value
2023-09-24	Predicted Average Cloud Cover (%)	82.62
2023-09-24	Predicted Average Temperature °F	72.96
2023-09-24	Weather Outlook	Overcast
2023-09-24	Predicted UV Radiation	7.21



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# Any Questions?

Comments?

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