Umer Ghafoor

Robotics Engineer

Adept software engineer with expertise in robotics and automation. I am seeking a challenging position to contribute to cutting-edge projects and drive technological progress significantly.

Technical Proficiencies

Data Science and Computer Vision:

Applies Jupyter Notebook and Python, leveraging NumPy, Pandas, and Matplotlib for comprehensive **data visualization** and **machine learning.**
Additionally, proficient in using OpenCV for **computer vision.**

Application Development:

Skilled in developing **desktop apps** using Python and PyQt-6 and cross-platform apps with C++ and the **Qt Framework**.
Also developed **Flutter web and mobile apps**.
Also proficient in HTML and CSS **website design**.

Version Control:

Fully proficient in **Git** for version control, utilizing both **GitHub** and **GitLab** for collaborative development.

IoT, Electronics, and CAD:

Applies Proteus to create **PCBs** and circuits and Arduino for **IoT** applications.
Proficiency in SolidWorks/Fusion 360, AutoCAD, and Blender for **CAD** and **3D modeling**.

Graphic Design:

I possess broad expertise in **branding** and various design fields, showcasing proficiency in **graphic design** tasks using Adobe software.

Projects:

Ebook Manager (Python/Qt-6) Developed a local PDF management system with categorization and search features for enhanced user experience.
Inventory System (C++/Qt) Created an efficient stock management system with customer, admin, and vendor interfaces, fostering seamless operations.
Battery performance analysis project with Python, pandas, matplotlib, custom plotting functions, and GitHub contributions.

Education

FAST-National University of Computer and Emerging Sciences *(Islamabad)*
BS-CS (Robotics & Automation)

Certifications:

Foundations of Project Management	Issued: Dec 2023
Machine Learning Specialization	Issued: Oct 2023
OpenCV Bootcamp	Issued: Jul 2023
Tensorflow Keras Bootcamp	Issued: Jul 2023

Extracurricular

Co-Founder and Secretary at **FAST-LADS** (Leaders Advancement & Development Society)
Coordinator Graphic design at **IEEE-FAST(2022-2023) & ISYWSC 2022.**

Contact

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Programming Languages

C++, Python, Dart, HTML/CSS

Technology/Framework

- Flutter
- Qt
- OpenCV
- TenserFlow
- Jupyter Notebook
- NumPy
- Pandas
- Matplotlib

Software programs

- Adobe Creative Suit
- Microsoft Office
- Microsoft Visual Studio
- Android Studio
- Visual Studio Code
- Blender
- SolidWorks
- Fusion 360
- AutoCAD
- Proteus

Skills

- Project Management
- Teamwork
- Creative Problem-Solving
- Self Motivated

Battery Degradation Trajectory Prediction

Data-Driven Lifespan: Python Predictions for Battery Health

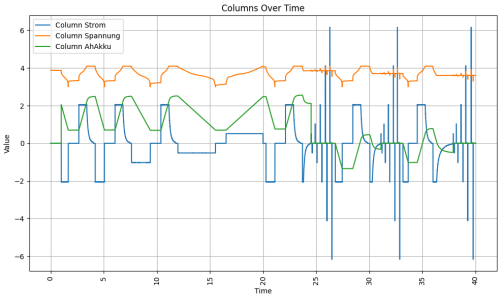
I spearheaded a dynamic project centered around the in-depth analysis of time-series data, specifically focusing on battery performance. Leveraging Python's powerful libraries, including pandas and matplotlib, this project aimed to unravel critical insights from CSV files, shedding light on the intricate behavior of various battery parameters over time.

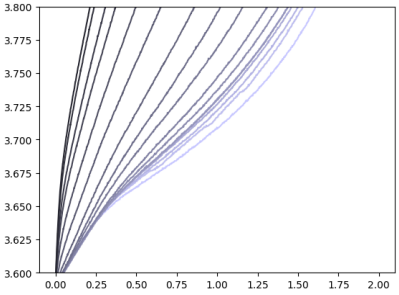
My Role:

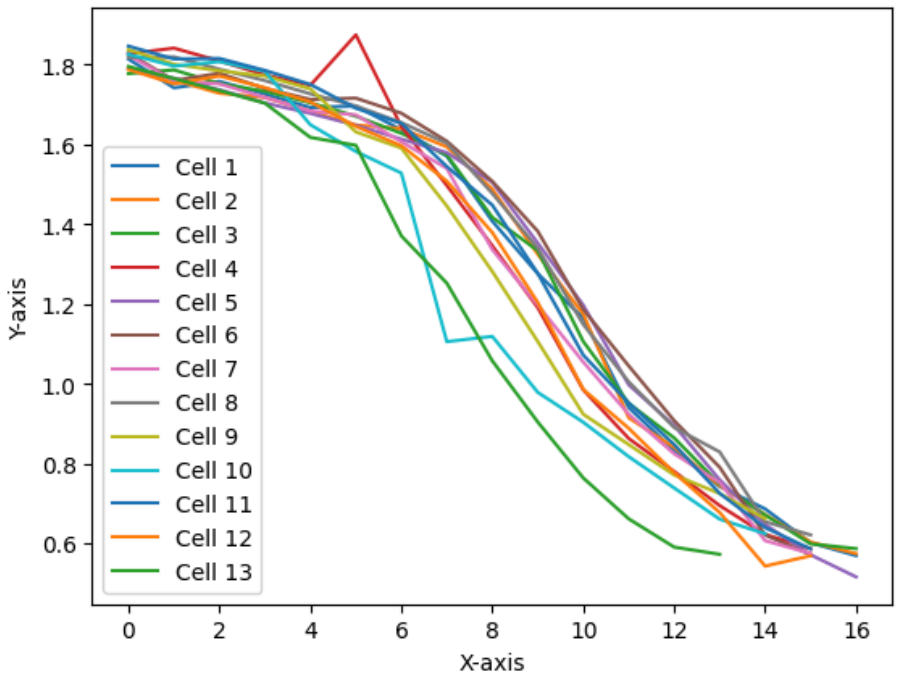
- Conceptualized the data analysis approach.
- Implemented data loading, refinement, and manipulation strategies.
- Developed custom plotting functions and threshold-based analysis.
- Conducted capacity and voltage charging analyses, applying domain-specific knowledge.
- Oversaw data merging and filtering processes for comprehensive insights.

Key Features:

- Employed advanced techniques to transform time data, enhancing its interpretability.
- Custom Plotting Functions: Developed bespoke plotting functions to visualize specific columns and time ranges effectively.
- Conducted an extensive analysis of battery capacity across multiple files, unveiling trends over iterations.
- Investigated voltage charging patterns, offering a detailed understanding of battery behavior.
- Merged data from diverse CSV files, applying nuanced filtering for precise insights.







Technology Used:

pandas NumPy jupyter

Learning Points:

Strengthened skills in transforming and refining time-series data for meaningful analyses.
Gained proficiency in developing bespoke plotting functions tailored to specific project requirements.
Acquired insights into battery performance metrics and their significance in real-world applications.
Enhanced teamwork and collaboration skills through contributions to a shared GitHub repository.

Inventory Management System

Using the Qt framework and C++, Open Inventory is an open-source inventory management system. The system offers a complete solution for tracking and managing assets, to streamline and improve enterprise inventory management.

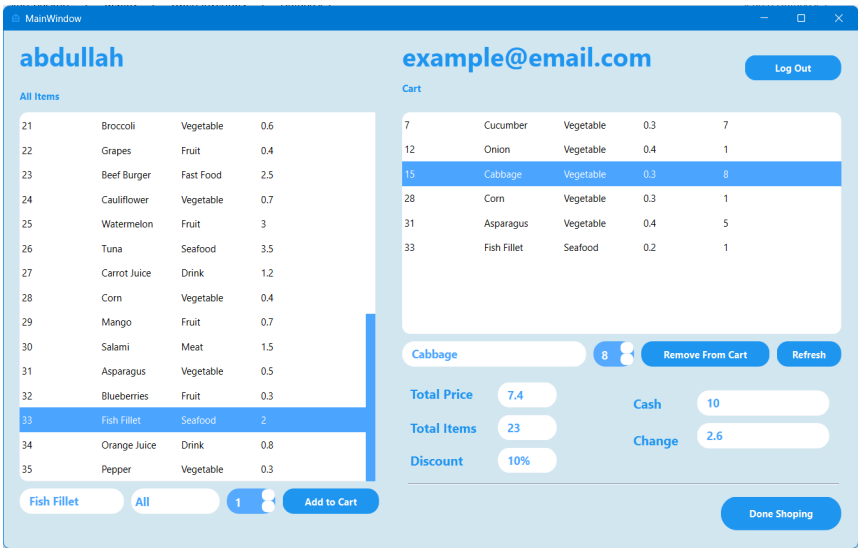
My Role:

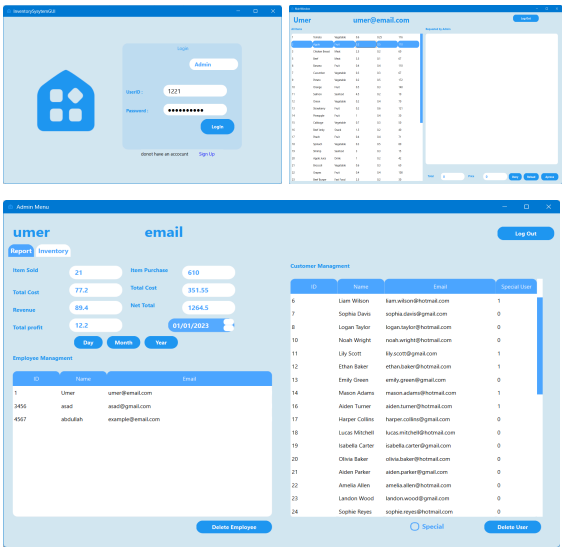
Sole developer responsible for
- Design
- Implementation
- testing.

Technology Used:

Key Features:

- Custom menus for administrators, vendors, and customers provide an intuitive interface.
- Enables users to place orders and easily generate invoices.
- Effective Inventory Management: Provides a dedicated interface for suppliers, making it easier to add stock.
- Strong Control: User Administration: Effective Instruments for Managing Vendor and Customer Profiles.
- Sturdy instruments that offer information on profit and loss to help with decision-making.





E-book Manager

Developed a robust E-book Manager application using PyQt6 for efficient organization and preview of e-books. Empower users to seamlessly manage their e-book collections with a user-friendly interface.

My Role:

Sole developer responsible for
- Design
- Implementation
- testing.

Technology Used:

Key Features:

Developed an e-book management system with a visually appealing grid layout displaying essential details.
The layout dynamically adjusts to window size and supports filtering (name, author, genre, page count range), and sorting options.
Users can preview, rename, and paste images as covers, with integration with a custom dialog.
The system facilitates opening e-books using the default system application, saves/loads last used folder paths, and applies stylesheets for a visually appealing design.