

Vedang Wartikar

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INDUSTRY PROJECTS

• Virtual Lab Assistant

Major Project under the guidance of [Bharati Patidar](#)

GitHub: github.com/vedangwartikar/lab-assistant

Sponsored by Persistent

- The primary motive behind this project was to reduce the manual efforts of a college lab assistant by efficiently automating the workflow
- After connecting the Slack app from the lab assistant's phone to multiple PCs in a college lab, the application can perform a variety of tasks
- The application is built using Python, Slack-API endpoints, and some NLP techniques and deployed using Docker containers and Redhat Ansible
- Use cases (deployed and tested in a college lab):
 - * Generate a detailed process log from any of the PCs
 - * Bulk install any programming related software on multiple PCs using a single command
 - * Monitor if any student is accessing a forbidden application/website
 - * Send a pop-up warning/alert during examinations
 - * Shutdown/Restart all PCs through a one-click message

• Drone Surveillance System

POC Project

GitHub: github.com/vedangwartikar/drone-surveillance-system

L&D dept at Persistent

- The Drone Surveillance System detects the presence of a crowd from the proximity of pedestrians.
- A Keras RetinaNet model is trained on a custom dataset and a video can be fed for real-time crowd detection
- The video feed is broken down into frames and the RetinaNet model is applied over individual frame for detecting distinct datapoints
- The ML model interacts with an Angular-based UI with the help of Flask API endpoints

PERSONAL PROJECTS

• File System Emulator (FSE)

Deployed at

GitHub: github.com/vedangwartikar/file-system-emulator

replit.com/file-system-emulator

- Implementation of the UNIX/Linux file subsystem using C
- It provides all the commands and system call implementation through a customized shell and comprises of all the necessary data structures of the file system like inode, file table, etc.
- The entire file manipulation of FSE occurs on RAM and does not affect any secondary storage device

• Process Monitoring Tool (ProcMon)

GitHub: github.com/vedangwartikar/procmon

- ProcMon provides detailed information of all the running processes(.exe files) on a Windows NT machine
- It is developed using C++ and Microsoft's tlhelp32 (tool help) library from Win32 API, and can be used to display all processes/threads, terminate a specific process, show memory usage and hardware details

• Cancer Prediction - Custom KNN Model

GitHub: github.com/vedangwartikar/wisconsin-cancer-prediction

- It helps in predicting whether the tumor is benign or malignant from real-valued features like radius, perimeter and smoothness of the cell nucleus from UCI's Wisconsin Diagnostic Dataset

- Instead of the pre-built model from sklearn library, a custom-built K Nearest Neighbor (KNN) Model is developed from scratch using Pythonic data structures

- **Drone Surveillance System**

Github: github.com/vedangwartikar/drone-surveillance-system

- Developed a Drone Surveillance System for detecting the presence of crowd from the proximity of pedestrians
- Used the Keras RetinaNet object detection model and Flask endpoints to interact with Angular based UI

- **Process Logger**

Github: github.com/vedangwartikar/process-log-mail

- The application generates a log file of the running processes including their PIDs, memory usage and mails it to the server using automated periodic scheduling
- It also plots the processes with highest memory consumption

- **GRE Word Bot**

Github: github.com/vedangwartikar/gre-word-bot

Deployed at
t.me/gre_word_bot

- Created a simple Telegram bot in Python for studying GRE words
- It selects a random word from the Magoosh dataset and gives the user its meaning, part of speech and an example
- It can be triggered to send daily ‘n’ words for increasing one’s vocabulary

- **Sorting Visualizer**

Github: github.com/vedangwartikar/sorting-visualizer

Deployed at
vedangwartikar.github.io/sorting-visualizer

- Built a ReactJS based application that helps in visualizing different sorting techniques like Bubble sort, Merge sort, Insertion sort, etc

ACADEMIC PROJECTS

- **S.A.D.V.R. - Space Analysis and Diagnostics Virtual Reality**

Github: github.com/vedangwartikar/S.A.D.V.R.

Final Prototype for
CS 6364 (Spring 2023)

- This project is designed as a training program to help users (astronauts) diagnose and fix problems in a spacecraft using Virtual Reality
- This project is built using Unity with C# Scripts, Photon for Multiplayer and Voice chat support and deployed on Android device as an APK
- 2 or more players can play the game using any Android mobile device, a Google VR Cardboard and a wireless controller
- A short description about the training program:
 - * The game tasks players with fixing issues on a spacecraft, including fixing damaged wires, putting out fires, and fixing malfunctioning pipes
 - * Users can pick and drop tools, open and close doors, and check their progress on a dashboard
 - * The teleportation room allows users to move between levels, and when all tasks are completed, an alarm sounds to indicate success

- **Bank Management System using Java**

Github: github.com/vedangwartikar/bank-management-system

- **Boston house feature selection using Genetic Algorithm**

Github: github.com/vedangwartikar/genetic-boston

- **Fuzzy Logic based ‘Tipping Controller’**
- **Air humidity classification using Data Mining techniques**
- **Online Learning Platform using Python, Flask and AWS Stack**