The unique prospect of Information Technology Development && Technology Portfolio

An Information Technology Portfolio

Highlighting my projects and Research

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Changelog

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Introduction

This portfolio serves as an outlet and professional overview of Owen Dobson Information technology projects and his research regarding similar systems and technologies within the tech space. Owen Dobson has developed many technological systems with extreme innovation that strive to help improve daily activities and bridge the gap between the physical and the digital space for maximum productivity and efficiency. Owen Dobson has attended the Franklin County Career Tech Center for Information Systems Technology, Harrisburg University NUPATHS program for IT FUNDMENTALS, Harrisburg Area Community College for Business Science related classes, and enrolled in various certificate programs through learning platforms.

Projects and Innovation Tactics/Architecture Procedures

Project 1: Docker and Docker Containers

- **Description:** Utilized Docker and Docker containers for efficient application deployment and management.
- **Innovation Tactics:** Employed containerization to isolate applications and their dependencies, ensuring consistent operation across different environments.
- **Architecture Procedures:** Followed best practices for Docker image creation, including minimizing image size and utilizing multi-stage builds where applicable.

Project 2: Proxmox Virtual Environment (PVE) Server Setup

- **Description:** Configured a Proxmox server to host Docker containers and Git repositories.
- **Innovation Tactics:** Leveraged Proxmox's virtualization capabilities to create isolated environments for different applications and services.
- **Architecture Procedures:** Implemented network segmentation to isolate containers and repositories, enhancing security and performance.

Project 3: Raspberry Pi Integration with j5create USB to HDMI Adapter

- **Description:** Integrated a Raspberry Pi with a j5create USB to HDMI adapter for display output.
- **Innovation Tactics:** Explored alternative display solutions using affordable hardware.
- **Architecture Procedures:** Developed custom drivers or configurations to enable compatibility between the Raspberry Pi and the USB to HDMI adapter.

Project 4: ASL (AllStar Link) Asterisk Integration

- **Description:** Integrated ASL (AllStar Link) Asterisk to enable dialing phone numbers from a radio.
- **Innovation Tactics:** Utilized ASL's features to bridge radio communication with traditional telephony systems.
- **Architecture Procedures:** Configured Asterisk to interface with radio equipment and manage dialing operations.

Project 5: Software-Defined Labor Simulation

- **Description:** Simulated a company's operations using software-defined labor, automating tasks such as sales, bookkeeping, and accounting.
- **Innovation Tactics:** Replaced human labor with software-based solutions to improve efficiency and reduce costs.
- **Architecture Procedures:** Developed AI and Python scripts to automate virtual assistant roles and manage social media tasks.

Projects and Innovation Tactics/Architecture Procedures (continued)

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Project 6: Off-Site Backup System with Raspberry Pi Zero and PCC110 Powerharvester

- **Description:** Implemented an off-site backup system using a Raspberry Pi Zero powered by a PCC110 Powerharvester RF-to-DC converter chip.
- **Innovation Tactics:** Explored RF energy harvesting for powering remote devices.
- **Architecture Procedures:** Configured the Raspberry Pi Zero to perform automated backups and synchronize data with a central server over the internet.

Project 7: Wireless Power Transmission Experiment

- **Description:** Conducted experiments with wireless power transmission from one location to another.
- **Innovation Tactics:** Explored long-range power transmission technologies for remote applications.
- **Architecture Procedures:** Tested different wireless power transmission methods and evaluated their efficiency and feasibility for practical use.

Project 8: Infrastructure Redesign with Proxmox and Cloud Services Integration

- **Description:** Redesigned infrastructure by installing Proxmox on a desktop machine to run virtual machines and integrating various cloud services.
- **Innovation Tactics:** Centralized infrastructure management and improved scalability by leveraging virtualization and cloud technologies.
- **Architecture Procedures:** Migrated existing services to virtual machines, optimized resource allocation, and integrated cloud services for backup and data synchronization.

Project 9: Virtual Assistant Development

- **Description:** Developed a virtual assistant using AI and Python to automate tasks and provide information.
- **Innovation Tactics:** Designed a conversational interface to interact with users and perform actions using APIs.
- **Architecture Procedures:** Integrated natural language processing (NLP) and machine learning models to enhance the virtual assistant's capabilities and responsiveness.

Project 10: RF Energy Harvesting Research and Development

- **Description:** Researched and developed RF energy harvesting solutions for powering low-power devices.
- **Innovation Tactics:** Explored VHF/UHF bands for RF energy harvesting and developed custom circuits for energy conversion.
- **Architecture Procedures:** Designed and tested RF energy harvesting circuits, evaluated their efficiency, and integrated them into practical application.

Conclusion

In conclusion, my journey in the realm of Information Technology has been characterized by a relentless pursuit of innovation and practical problem-solving. The projects highlighted in this portfolio reflect my dedication to improving efficiency and bridging the gap between physical and digital domains. These experiences have equipped me with the skills and knowledge necessary to tackle complex challenges and drive technological advancement.

Skills and Technologies

- **Programming Languages:** Python, Bash, JavaScript
- **Tools and Software:** Docker, Proxmox, GitLab, Apache, FreePBX, ASL (AllStar Link) Asterisk
- **Hardware:** Raspberry Pi, Panasonic KX-TGF370 analog phone
- line adapters, Ethernet, RTL-SDR
- **Methodologies:** Virtualization, automation, energy harvesting, RF technology

Certifications and Education

- **Franklin County Career Tech Center:** Information Systems Technology
- **Harrisburg University NUPATHS:** IT Fundamentals
- **Harrisburg Area Community College:** Business Science classes
- **Online Learning Platforms:** Various certificate programs

Future Projects and Goals

Looking forward, I am excited to continue exploring new technologies and their applications. My upcoming projects include:

- **Advanced Virtual Assistant Development:** Enhancing AI capabilities and integrating more APIs for automation.
- **Energy Harvesting Innovations:** Exploring new methods and technologies for efficient energy harvesting.
- **IoT Integration:** Developing smart home solutions and integrating IoT devices for improved home automation.

My long-term goals are to become a leading expert in IT and technology development, constantly pushing the boundaries of what is possible and creating solutions that have a meaningful impact on everyday life.

References and Contact Information

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