Request for Approval to Assign Live Project to Students

1 message

<priyanka.pande@lgpsenergy.in> Sun, Aug 11, 2024 at 23:08
To: yogeshnarekar@sbjit.edu.in
Cc: vaishnavirahamatkar18@gmail.com, dhekwarvaishnavi@gmail.com, ayushkumarroy20p@gmail.com, atharvawakdikar3@gmail.com

Respected Sir,

I am writing to seek your approval to assign live projects to a group of students from Emerging Technologies (AIML & AIDS), SBJITMR, Nagpur. This project is a part of their curriculum and is designed to provide them with practical experience that complements their academic learning.

The proposed project is as follows:

Project Title: Intelligent Home Automation System Using Gen AI and IoT for Personalized Energy Management to Reduce Carbon Footprint

Abstract:

This project aims to develop an advanced home automation system that leverages the power of Generative AI (Gen AI) and Internet of Things (IoT) technologies to create a personalized energy management solution. The system utilizes the ESP8266 microcontroller, along with various environmental sensors such as light, temperature, and motion detectors, to gather real-time data from the home environment. By analyzing this data, the Gen AI model will learn the habits and preferences of the household occupants, enabling it to predict and automate the control of household appliances. This intelligent system is designed to optimize energy consumption, enhance user comfort, and reduce the household's carbon footprint. The project highlights the potential of combining AI and IoT for sustainable and efficient living.

Project Objectives:

1. **Design and Implementation of IoT System**:
    - Develop an IoT network using the ESP8266 microcontroller and various environmental sensors (light, temperature, motion) to monitor the home environment in real time.
    - Ensure reliable data transmission between sensors, the microcontroller, and the central processing unit.
2. **Integration of Generative AI**:
    - Implement a Gen AI model capable of analyzing the data collected from the IoT sensors.
    - Train the AI model to learn and predict user behavior, preferences, and energy consumption patterns.
3. **Automation and Control of Appliances**:
    - Develop algorithms for the automation of household appliances based on the predictions generated by the Gen AI model.
    - Implement real-time control of appliances to optimize energy consumption while maintaining user comfort.
4. **Energy Management Optimization**:
    - Create strategies to minimize energy usage by adjusting appliance operation based on real-time environmental conditions and user habits.
    - Evaluate the system's impact on reducing the overall energy consumption and carbon footprint of the household.
5. **User Interface Development**:
    - Design a user-friendly interface that allows users to monitor the system's performance, receive insights on energy usage, and manually override automated settings if needed.
    - Provide detailed reports and visualizations on energy savings and environmental impact.
6. **Testing and Validation**:
    - Conduct extensive testing in a real-world environment to validate the system's effectiveness in predicting user behavior and managing energy consumption.
    - Collect feedback to refine and improve the system's functionality and user experience.

Students Involved:

1. Vaishnavi Rahamatkar
2. Vaishnavi Dhekwar
3. Ayush Roy
4. Atharva Wakdikar

Project Duration:

- Start Date: 13 August 2024
- Completion Date: 11 October 2024

The students will be responsible for delivering both Software and Hardware models and adhering to the timeline provided. They will benefit immensely from your guidance and expertise during this period.

If you approve, I would like to proceed with the formal assignment of these projects to the students. Additionally, if you have any suggestions or specific requirements that you would like the students to follow, please feel free to share them with me. Further details of the project will be shared after your approval.

Thank you for considering this request. I am confident that with your support, the students will gain invaluable insights and experience through these projects.

Looking forward to your positive response.

Thanks & regards,
Priyanka Pande,
L&D Manager,
LGPS Hybrid Energy Pvt. Ltd., Nagpur

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