**Pune Vidyarthi Griha’s College of Engineering and Technology and GK Pate (Wani) Institute of Management, Pune-09**

**Department of Computer Engineering**

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BE Project

Academic Year- 2024-25

Date:

To

The Project coordinator,

Computer Engineering Dept.,

PVG’s COET, Pune.

Sub:- Submission of Project Topics/Abstracts.

Respected Sir,

We undersigned, students of B.E. Computer Engineering are submitting our Project Titles along with Abstract of the Project (at least two) and related Reference Papers. We are bound to the decision taken by the department related to our selected project title and will submit the final synopsis for selected Project within given time, as per the prescribed format. Henceforth we will not change the project group or the selected project title/topic due to any reason.

Thank you.

**Topics of the Project :-**

1. **intellihome**

**2. words to worlds**

**3. ecomonitor**

**Project Domain:-**

1. ML + IOT

2. AR VR + AI

3. IOT

**Project Group Members:-**

| **Sr.No.** | **Roll No.** | **Name** | **Sign** |
| --- | --- | --- | --- |
| 1 | 0072 | Kavishwar Prashant Khankari |  |
| 2  3  4 | 0033  0067  0007 | Veeraja Prashant Ghate  Aryan Vivek Desai  Mayur Shriram |  |

Abstract1:

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With the rapid advancement of technology, smart home automation systems are becoming increasingly essential for enhancing modern living. However, many existing systems lack the adaptability needed to cater to individual user preferences and require significant manual configuration. This project focuses on the development of an IoT-based home automation system integrated with machine learning to provide an intelligent, personalized solution. The system automates key household functions, including lighting, temperature control, and security monitoring, by analyzing resident behavior patterns and environmental conditions.

Leveraging IoT sensors, actuators, and cameras, the system collects real-time data to enable dynamic control of the home environment. A centralized mobile or web application provides users with real-time monitoring and remote control of various functions, allowing them to manage their homes seamlessly from any location. Machine learning algorithms are used to analyze data and optimize energy consumption by automating tasks like adjusting lights or temperature based on occupancy and user preferences. Additionally, the system enhances security through real-time surveillance, threat detection, and instant notifications in case of suspicious activity.

Designed with scalability in mind, the architecture supports the integration of additional IoT devices and future upgrades without major disruptions. Reliability and security are prioritized through encrypted communication protocols and local processing to minimize latency. This project aims to deliver a smart home system that not only improves convenience and safety but also optimizes energy efficiency, reducing human intervention in routine tasks. By combining the power of IoT and machine learning, the proposed system paves the way for a smarter, more adaptive, and sustainable living environment, addressing the growing demand for intelligent home automation solutions.

Abstract 2:

This project focuses on leveraging cutting-edge technologies to revolutionize educational tools by incorporating advanced image generation and analysis techniques. The main goals of the project are as follows:

Sentiment Analysis: By analyzing user input, particularly student responses or interactions, the system tailors educational content according to the syllabus and learning context. This allows for personalized learning experiences, where the system adapts based on the user's emotional and cognitive responses, ensuring that the material resonates with the learner's current state of understanding and engagement.

Text to 2D Image Conversion: The project includes the development of algorithms that translate text descriptions into high-quality 2D images. This feature will enable students to visualize complex concepts or scenarios described in their textbooks, making abstract or theoretical information more accessible and easier to comprehend.

2D to 3D Image Transformation: Another key component is the ability to transform 2D images into detailed 3D models. This is particularly useful in fields like engineering, biology, and architecture, where spatial understanding of objects and structures is critical. By allowing students to interact with 3D representations of 2D images, the project enhances the depth and clarity of learning.

3D Image Generation for Educational Support: The project also aims to generate entirely new 3D images to

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support educational content. These 3D visuals will be created to supplement existing learning materials, enabling teachers and students to visualize complex objects, processes, and environments in a more immersive and intuitive manner.

Interactive Features: To further increase student engagement, the project integrates interactive elements within the educational tool. These features allow users to manipulate images, models, and other visual aids directly, fostering a hands-on learning experience. Interactivity will not only make learning more engaging but also help in reinforcing concepts by allowing students to experiment and explore different visualizations.

By merging sentiment analysis, image generation, and interactive technologies, this project seeks to create an innovative and immersive educational platform. The tool will provide students with a more personalized, engaging, and effective learning experience, ultimately enhancing educational outcomes and making complex subjects more approachable through visual and interactive learning aids.

Abstract 3:

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