PROJECT TITLES:

1. Gen AI-Powered Video Summaries for Faster Learning

Problem Statement

“The rapid growth of video content on platforms like YouTube has made it challenging for users to efficiently consume and extract meaningful insights from lengthy videos. Manually transcribing, summarizing, and generating key takeaways from videos is time-consuming and impractical. Additionally, users often need tailored summaries of varying lengths and the ability to ask specific questions about the video content.”

Abstract

This project proposes the development of a **Gen AI-Powered Video Transcription and Summarization Service** that goes beyond basic summarization to include advanced features like **dynamic summary modulation** and **Q&A generation**. The service will automatically transcribe videos using speech-to-text models and generate summaries of varying lengths (short, medium, or detailed) based on user preferences.

Additionally, the system will incorporate a **Q&A module** that allows users to ask questions about the video content and receive accurate, context-aware answers generated by a large language model (LLM). Semantic search capabilities will enable users to query specific topics or sections within the video, making it easier to locate relevant information.

The application will be deployed as a web-based platform, allowing users to input a video URL and access transcriptions, customizable summaries, and interactive Q&A features. The backend will use pre-trained LLMs (e.g., OpenAI GPT, Hugging Face models) for summarization, Q&A generation, and semantic search, while the frontend will provide an intuitive interface for seamless user interaction.

2. Crop Disease Detection System Using Deep Learning

Problem Statement

“In recent years, climate change and the lack of immunity in crops have led to a significant increase in the prevalence of crop diseases. This has resulted in reduced crop yields, financial losses for farmers, and a negative impact on the overall economy. Agriculture, being the backbone of many countries, relies heavily on the health of crops. However, the rapid emergence of new diseases and the limited knowledge of farmers make it challenging to diagnose and treat these diseases effectively.”

Abstract

This project proposes the development of an **AI-Powered Crop Disease Detection System** using deep learning techniques. The system is designed to help farmers identify diseases in crops quickly and accurately by analyzing images of plants. The core of the system is a deep learning model, specifically a Convolutional Neural Network (CNN), which is trained on a dataset of crop images labeled with various diseases.

The system works as follows:

1. The user uploads an image of a crop.
2. The image is pre-processed to enhance features and normalize the input.
3. The pre-trained CNN model analyzes the image and extracts relevant features.
4. The model predicts the disease (if any) and provides the output to the user.

The system aims to achieve high accuracy in disease detection, enabling farmers to take timely action and minimize crop losses. By integrating this technology into agriculture, the project seeks to improve crop yields, reduce financial losses, and contribute to the overall growth of the agricultural sector.

3. AI-Powered Personalized Learning: Bridging Educational Gaps with Adaptive Roadmaps, Intelligent Scheduling, and Dynamic Assessments

Problem Statement

“The traditional "one-size-fits-all" approach to education fails to address the unique learning needs, strengths, and weaknesses of individual learners. This issue is particularly pronounced for students in rural areas, who often lack access to quality educational resources, personalized guidance, and experienced educators. As a result, these students face significant challenges in keeping up with their urban counterparts, leading to disengagement, inefficient learning, and limited academic and professional opportunities.”

Abstract

This project presents an AI-driven framework that personalizes learning experiences through an adaptive roadmap, intelligent task scheduling, and dynamic assessment. The system uses machine learning algorithms to analyze learners progress, strengths, and weaknesses, generating a customized learning path tailored to individual needs. The task scheduler optimizes study sessions by prioritizing topics based on difficulty, engagement levels, and time constraints, ensuring efficient knowledge retention.

Additionally, the dynamic assessment mechanism continuously evaluates performance, providing real-time feedback and adjusting the learning roadmap accordingly. The proposed system integrates data-driven insights to enhance motivation and engagement, adapting to different learning styles. AI-based analytics help educators and learners identify knowledge gaps and adjust strategies in real time. Ultimately, this approach transforms traditional education into a highly personalized and efficient process, fostering better academic and professional development outcomes.