KMIT 3-1 PS Projects

Project Title	Project Description	Technologies	Mentor	Room	Groups	Link to Mentor's Project Description Video	Additonal Comments
AI-Powered Judicial Chatbot for Enhanced User Interaction	Background: The Department of Justice (DoJ) under the Ministry of Law & Justice, Government of India, manages judiciary operations. These include building court infrastructure, fast-track courts for sensitive cases, the eCourts Project, legal aid, and judicial officer training. Description: This project involves developing a chatbot for the DoJ's website. The chatbot should assist users by answering questions such as: a. Information on DoJ divisions. b. Number of judges and court vacancies. c. Case pendency via the National Judicial Data Grid (NJDG). d. Steps for paying traffic fines, e-filing, and court case streaming. e. Details on fast-track courts, eCourts services, and tele-law access. The chatbot should preferably learn from interactions to enhance user experiences and handle large datasets as the scope expands. Expected Solution: An AI-based chatbot that preferably improves over time, delivering quick, accurate responses and handling growing data efficiently.	Gen AI/LLM, Web Technologies	Ashok Sharma	**B401**	2	https://youtu.be/S9n43yRHfSk	SIH Project Dataset: https://doj.gov.in/
Mechanic AI: A Language Model Chatbot for Car Diagnostics	Project Overview: In this project, you will develop a chatbot that acts as a virtual car mechanic. This chatbot will utilize car manuals, service records, and maintenance guides to diagnose and troubleshoot car issues. Key Tasks: Data Collection:Gather car manuals, service records, and related documents from various sources. Data Processing: Use LlamaIndex to parse and organize the collected data. Employ Hugging Face embeddings to prepare the data for model training. Model Training: Implement the Retrieval-Augmented Generation (RAG) framework with the LLaMA 3 language model (or another suitable LLM) for accurate diagnosis of common car problems. Alternatively, fine-tune the LLaMA 3 model specifically for troubleshooting car issues. Evaluation: Test the chatbot's diagnostic capabilities with a variety of car problems. Refine the model based on performance feedback. Challenge: Integrate functionality for the chatbot to check the availability of required spare parts and facilitate ordering them. Additional Notes: The project should have a Mobile interface. Further, you are encouraged to explore and use alternative/additional features, technologies and tools that align with the project objectives.	Gen AI, Agent Framework, Web Technologies, React Native	Ashok Sharma	**B401**	3	https://youtu.be/oHDriF9alTY	
WealthWise: Personalized Financial Advisor & Planner	**Project Overview:** WealthWise is an intelligent financial advisory and planning as It addresses common challenges in financial planning by offering personalized fi insights. Utilizing a Retrieval-Augmented Generation (RAG) framework, an Agent WealthWise aims to provide users with accurate, timely, and actionable financia **Key Features:** - Personalized Financial Planning: Tailored advice based on individual financial g - Investment Recommendations: Leveraging RAG for up-to-date investment insig - Expense Tracking and Analysis: Utilizing LLM for detailed analysis and categoriz - Financial Knowledge Retrieval: Access to comprehensive financial data and ma - Interactive Financial Consultation: Managed through an agent-based architectu - Real-time Alerts and Notifications: Immediate updates on financial events and - Portfolio Performance Review: Regular assessments of investment performanc - Educational Resources: Access to financial literacy materials and guides. **Technical Details:** **Pre-trained Large Language Model (LLM):** Leverages a pre-trained LLM to ensu insights. **Retrieval-Augmented Generation (RAG)** Framework: Employs the RAG framew generative responses from the LLM, enhancing the depth and accuracy of finan **Agent Framework:** Utilizes an agent-based architecture to handle user interacti system components. **Additional Notes:** Plan and implement features selectively keeping in mind time Data collection will be interesting, consider generating synthetic data as an optic	Gen AI, Agent Framework, Web Technologies	Ashok Sharma	**B401**	3	https://youtu.be/el0VxgYxIe0	

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GenAI_Med3D	Imaging methods that dominate the medical field include X-ray, computed tomography (CT), positron emission tomography—CT (PET-CT), and magnetic resonance imaging (MRI). These methods are capable of producing sets of two-dimensional (2D) images and three-dimensional (3D) reconstructions for interpretation. 3D imagery provides a better way to visualize and accurately measure a patient's phenotypic characteristics.Medical 3D imaging can help surgeons plan procedures with more accuracy by providing precise measurements from scan data.This web app performs lung segmentation, pulmonary nodule classification and liver segmentation on 3D medical images using GenAI.	MERN,Docker,AWS, GenAI, RAG	Dr.Devika	**UDAAN**	3	https://drive.google.com/file/d/1fmKhwxu7vGYFNOGaJc9C-yTVhRt93I8C/view?usp=sharing	
GenAI_Remote_Sensing	Synthetic aperture radar (SAR) images are widely used in remote sensing. Interpreting SAR images can be challenging due to their intrinsic speckle noise and grayscale nature.Colorization of SAR images is helpful for image interpretation which will provide valuable insights and contributing to advancements in environmental monitoring,disaster management,agriculture, defence, and more.This mobile app uses GenAI techniques for SAR image colorization,flood area detection and mapping the various SAR crop images to the ground crop images.	Flutter/Firebase,Docker,AWS, GenAI	Dr.Devika	**UDAAN**	2	https://drive.google.com/file/d/1HNQToJHPZ6C6qT307KmgJWFZY0cFy0Sg/view?usp=sharing	SIH Project
RAG_cyber_detective	Investigating and attributing cyber-attacks are crucial processes, as they allow the implementation of efficient countermeasures. Cyber-attack attribution involves identifying the attacker responsible for a cyber-attack, is an essential process that enables experts to implement attacker-oriented countermeasures and pursue legal actions.This project aims to develop a web based question-answering (QA) model and its application that provides information to the cybersecurity experts about cyber-attacks investigations and attribution. The QA model is based on Retrieval Augmented Generation (RAG) techniques together with a Large Language Model (LLM) and provides answers to the users' queries based on either knowledge base (KB) that contains curated information about cyber-attacks investigations and attribution or on outside resources provided by	MERN,Docker,AWS, GenAI, RAG	Dr.Devika	**UDAAN**	2	https://drive.google.com/file/d/1J7NTaj0NT0ll6xhg5SJqK7fCSYkUdqOv/view?usp=sharing	
Domain-Specific Intelligent Chatbot for SMEs Using Fine-Tuned LLMs with Retrieval-Augmented Generation (RAG)	This project focuses on creating a domain-specific chatbot for small and medium enterprises (SMEs) using customized Large Language Models (LLMs). The chatbot is designed for industries like education, hospitality, tourism, hospitals and retail etc,. Key features include automatic fine-tuning of the model based on domain-specific content, where users can simply upload PDF files, and the system will automatically process the data in the background. The chatbot also integrates Retrieval-Augmented Generation (RAG) to ensure responses are accurate and contextually relevant. This approach ensures that the chatbot is always up-to-date and capable of providing real-time, domain-specific interactions without manual intervention. The solution is scalable, easy to deploy, and designed to enhance customer engagement and streamline information for SMEs.	The following options may be considered and can explore other relevenat tehnologies . For Data Extraction and Preprocessing, leverage PyMuPDF, pdfminer, or pdfplumber for text extraction from PDFs, and NLTK or SpaCy for text cleaning. LLaMA, GPT-Neo, GPT-J, BERT, RoBERTa, and T5 are free pre-trained models suitable for fine-tuning with Hugging Face Transformers and PyTorch. Integrate Retrieval-Augmented Generation (RAG) using DPR, BM25, Elasticsearch, or FAISS, and deploy with FastAPI, Flask, or Django.	G Badrinath	**B402**	5	https://www.youtube.com/watch?v=iCTdDhspiCg	

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Hybrid Deep Learning and Optimization Techniques for Detection of Ransomware Attack	This project focuses on developing a real-time ransomware detection system by integrating deep learning models with SSL visibility devices for comprehensive network traffic analysis. The solution involves using Convolutional Neural Networks (CNNs) and Gated Recurrent Units (GRUs) to analyze decrypted network traffic data for detecting ransomware activities. SSL visibility devices will decrypt encrypted traffic, allowing the deep learning models to inspect and analyze detailed network behaviors and anomalies. CNNs will extract feature patterns from the traffic data, while GRUs will handle temporal dependencies and sequences, enhancing the system's ability to identify sophisticated ransomware threats.Additionally, a Large Language Model (LLM) will be integrated to provide contextual analysis, generate human-readable explanations, and adaptively refine the detection models based on evolving threat intelligence. The real-time detection capability will provide immediate alerts and responses, ensuring robust protection against evolving ransomware attacks.	The real-time ransomware detection system utilizes SSL visibility devices to decrypt incoming network traffic. Initial filtering performs a quick assessment to identify suspicious traffic. Non-suspicious traffic is allowed through, while suspicious traffic is routed to a deep learning model built with TensorFlow/Keras or PyTorch, employing Convolutional Neural Networks (CNNs) and Gated Recurrent Units (GRUs) for detailed analysis. The model determines if the traffic is malicious; malicious traffic is dropped, while benign traffic is allowed to proceed.Large Language Model (LLM) is integrated to provide advanced contextual analysis, generate comprehensive threat reports, and offer adaptive insights based on evolving threat intelligence	G Badrinath	**B402**	2	https://youtu.be/P9n1ZX3lxxI	
Genetate SEO Keywords by analysing video	Overview: In this project, student as to do following Task 1. Already Existing Video, Extract the text from video 2. After Extracting Video Description, you need analysis the data 3. Now you need to generate AI SEO-optimized descriptions with relevant keywords, hashtags, and links. 4. If User wants to upload video into Youtube, Our AI suggest keywords/hashtags should be visible & List in SEO rankings. Outcome: Our tool/webapp as to Generate SEO Keywords for SEO rankings, JustLike vidiQ's Note: Keyword Analysis Process For SEO, You can watch below Template for Traffic Analysis https://youtu.be/O5WyXoVl0i8	MERN + AI	M. Shanker	**B403**	2		
Optimize Code Generator using GenAI	Overview: In this project,The students as to be design a Webapp which contains a prompt that Query any Question regarding programming coding(C,CPP,Java, Python,HTML) it as to be genearte optimized code for Cost Reduction. For more Details: You can watch the below link which helps to understand 3 ways of code generator: https://zzzcode.ai/code-generator We need to Optimize the Code Outcome: 1. Optimize the code & 2. It as Improve Code Quality, 3. Cost Reduction 4. Quality Assurance 5.Supporting Legacy Code Modernisation	MERN + AI	M. Shanker	**B403**	3		SIH Projects https://www.sih.gov.in/sih2024PS

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Fitness LLM (Part-2)	Overview: Already we create a LLM for Personalized Training in below URL: https://workout.lol/ In This Project you need to add Video Interaction with User & LLM Agent, While doing workout the User video should be on & System will generate workout The user as to do workout paralley with System genearted video, If any wrong Gusture/Posture video as to pause & User as correct it then proceed with workout. Outcome: Already Personalized/Customized Training code completed, Now, you need to add extra features like 1. User as to Interact with App using Video Stream 2. The System Generated video will be paused If User doing a wrong Gusture/Posture 3. Provide acuracy percentage while doing Workout 4. Webapp should be two ways Interaction.	MERN + AI	M.Shanker	**B403**	2		https://zzzcode.ai/code-generator
AI based Katha-Vaachak	Objective: Develop a Katha-Vaachak project that uses Generative AI (GenAI) to create engaging, customized stories based on user input. The tool will allow users to input characters, settings, and plot elements, and the AI will generate a unique and coherent story. This project aims to offer an interactive and creative experience for users, such as children, writers, or anyone interested in storytelling. Project Overview: Storytelling is a powerful tool for education, entertainment, and creativity. This project involves building a virtual storyteller that leverages the capabilities of Generative AI to create original narratives on demand. Users can provide specific details like character names, locations, and key plot points, and the AI will craft a story that weaves these elements together in a natural and engaging way. The storyteller can be designed for various purposes, such as creating bedtime stories for children, generating creative writing prompts for authors, or simply offering a fun and interactive experience.		Pooja Dixit	**B404**	3	**https://drive.google.com/file/d/1nJoXeqPF_FUeSwQjd2_f2Ws7rX7BEY4a/view?usp=sharing**	
Interactive Learning Quiz Generator	Objective: Develop a tool that automatically generates interactive quizzes based on user-provided topics or text using Generative AI (GenAI). This tool aims to enhance learning by creating custom quizzes that help users test their knowledge and reinforce their understanding of the material. Project Overview: Quizzes are a proven method for reinforcing learning, but creating them manually can be time-consuming. This project leverages GenAI to automatically generate quizzes tailored to specific topics, chapters, or documents. Users input a topic, a piece of text, or select a subject area, and the system generates a quiz with various question types, including multiple-choice, true/false, fill-in-the-blank, and short answer questions.		Pooja Dixit	**B404**	3	**https://drive.google.com/file/d/1Z5sE-d-5eRrU22yS4429U82Lg-QqMPE8/view?usp=sharing**	
Personalized Recommendation System Using GenAI	Objective: Create a system that uses Generative AI (GenAI) to provide personalized recommendations, like suggesting products, movies, or articles, based on what a user likes and does online. Project Overview: This project aims to build a smart recommendation system that understands each user's preferences by analyzing their online behavior, such as what they've clicked on, watched, or read. The system will then use this information to make suggestions that match their interests. For example: 1. In E-commerce: It could suggest products similar to ones a user has browsed or bought.		Pooja Dixit	**B404**	2	**https://drive.google.com/file/d/1dzaAqsx7UydLnx7xYod-srog6tTMZzq5/view?usp=sharing**	
AI based Automatic alarm generation and dropping of payload at a particular object through a Drone.	Drones are currently being widely utilized in civilian applications and military uses too. In severe earthquake and flood situations, the Drones with artificial intelligence based automatic object recognition capability can help rescue teams a lot through automatic alarm generation and dropping of payloads like food, clothes, rescue tools near detected human being. Challenge here is to detect human being from around 50-100 m above the ground at a slanted angle and then drop a payload (say flower for demonstration purposes) near him/ her. Technologies needed will be Drone, Cameras, Processor Board (Raspberry Pi or Intel NUC), Artificial Neural Network or AI hardware and Software, Payload dropping mechanism etc. The developed system will be highly useful in many DRDO projects and civilian applications.		SAIKRISHNA	**UTTKARSH**	3	https://youtu.be/0yHJFbNapOQ?si=CDjQ3Mz-nh_DBtHs	

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Development of an Autonomous Balloon Hunter Drone Utilizing Vision-Language Models for Enhanced Balloon Detection and Interception	The challenge is to design and develop an autonomous drone system that leverages Vision-Language Models (VLMs) to accurately detect, track, and neutralize balloons in real-time. The drone must be capable of operating in various environmental conditions, differentiating balloons from other objects, and performing interception maneuvers autonomously. The VLM will enhance the drone's ability to understand and interpret visual data by incorporating contextual information derived from textual descriptions, improving its decision-making process in dynamic scenarios.		SAIKRISHNA	**UTTKARSH**	2	https://youtu.be/S9Di0qYD5JU?si=IOShyqF0D2N5EW80	
Development of an Autonomous Pick and Drop Manipulator Utilizing Vision-Language Models for Enhanced Object Recognition and Task Execution	The challenge is to design and develop an autonomous pick and drop manipulator that utilizes Vision-Language Models (VLMs) to accurately recognize, select, and relocate specific objects based on both visual cues and verbal or text-based instructions. The system must be capable of operating in diverse and potentially cluttered environments, understanding complex instructions (e.g., "pick up the red cup next to the blue book"), and executing precise manipulation tasks autonomously.		SAIKRISHNA	**UTTKARSH**	2	https://youtu.be/xQbWuopmgYQ?si=DgqlCpBdZcdpptWR	
PathGen - A GenAI based LearningPath Generator.	Develop a hybrid Generative AI-based app that creates and dynamically adjusts personalized learning paths for students based on their individual learning styles, goals, performance, and feedback. This app should offer a tailored educational experience, helping students progress efficiently through their courses and achieve their academic objectives	MERN , GenAI	Sireesha	**B408**	2	**https://drive.google.com/file/d/176h6H4quSBR8LPQp-ZgnIc8pPMOFC2vm/view?usp=sharing**	**https://docs.google.com/presentation/d/14KekfiovhPkwBgTFal6k6VlqI1O6igg3/edit?usp=sharing&ouid=103990547172299399362&rtpof=true&sd=true**
ReviewBot - A GenAI based app for product reviews	Develop a hybrid application that integrates a chatbot to assist users in analyzing and understanding product reviews. This app should leverage a product review dataset to provide valuable insights and interactive features, enhancing the user experience.	MERN, GenAI	Sireesha	**B408**	2	**https://drive.google.com/file/d/1OD-9I76HzrkpCyu35ULRR5vC-847Hshe/view?usp=sharing**	**https://www.kaggle.com/code/nehaprabhavalkar/analysis-of-indian-product-reviews-on-amazon/notebook** **https://docs.google.com/presentation/d/1ObmJbaGSjVDl8jMtin5wr3UIcNYiXpCo/edit?usp=sharing&ouid=103990547172299399362&rtpof=true&sd=true**
SocialAISahayak-Analyze, optimize, and then strategize your posts for peak engagement	In the rapidly evolving landscape of social media, influencers and e-commerce businesses need data-driven insights to optimize their engagement and reach. This project aims to build a hybrid app that harnesses the power of Generative AI to offer actionable recommendations and analytics. The app will also include a chatbot to provide personalized assistance based on user interactions and data. Develop a hybrid application that leverages Generative AI to provide advanced analytics, predictive insights, and personalized content recommendations for social media users, including influencers and e-commerce businesses. The app should integrate a chatbot that assists users in understanding and utilizing these insights effectively.	MERN , GenAI	Sireesha	**B408**	2	**https://drive.google.com/file/d/1hAEou6o3powmv0RbDe-_zQrGq4KEA7w9/view?usp=sharing**	**https://www.kaggle.com/datasets/anoopjohny/socialmedia** **https://docs.google.com/presentation/d/1pULS87Cvy99bx0t5va7GBu3h9Hg7SLxP/edit?usp=drive_link&ouid=103990547172299399362&rtpof=true&sd=true**
Feedback analysis using GenAI agent	Project Description: "Feedback Analysis using GenAI Agent" is a system that uses a custom-built generative AI algorithm to analyze and summarize customer feedback or reviews. The project aims to create an AI agent capable of processing textual feedback, extracting key sentiments, and generating concise summaries. Key features to be implemented: 1. Text preprocessing and tokenization 2. Sentiment analysis 3. Key phrase extraction 4. Summary generation using a custom language model 5. User interface for input and display of results	- GenAI - Any web development framework (Watch the explanation video for better understanding)	Sripooja	**B409**	3	**https://www.youtube.com/watch?v=kJez4XN2EFM**	

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GenAI based gym/workout assistant	Project Description: Develop a GenAI-based gym/workout assistant that provides personalized exercise recommendations, form guidance, and progress tracking. Key features to be implemented: 1. Personalized workout plan generation 2. Personalized diet plan generation 3. User friendly conversational interface for user queries 4. Workout form analysis and correction suggestions (use CV based algo for this) 5. Progress tracking and visualization	- GenAI - Deep Learning (Computer Vision) - Any mobile/web development framework (Watch the explanation video for better understanding)	Sripooja	**B409**	3	https://www.youtube.com/watch?v=hy3jqnBE_jA	
GenAI powered Chatbot for FAQs	Project Description: Develop a GenAI-powered chatbot to handle Frequently Asked Questions (FAQs) for a college department or student service center. Key features to be implemented: 1. Natural language processing for user queries with a user friendly web interface 2. AI-driven response generation 3. FAQ database integration 4. Continuous learning from user interactions 5. Basic analytics for tracking common questions	- GenAI - Any web development framework (Watch the explanation video for better understanding)	Sripooja	**B409**	2	https://www.youtube.com/watch?v=N5HSMjoeHL0	