

KMIT PS 2-2 2024 Projects List

Project Title	Project Description	Technologies	Mentor	Room	Groups	Link to Mentor's Project Description Video	Additional Comments	Additional Material
LecturesCheck	Dune State University would like all their Professors to record the lectures and upload them to their Learning Management System so that the lectures are available for students to watch anytime. With each video a PDF file too is uploaded. The system needs to validate the video for topic wise coverage. It also needs to match the video content and PDF and show its analysis.	MERN LLM	Sireesha	B208	3	https://drive.google.com/file/d/14aph2PRi4dXl2EZ9UHo62jKJpxYk83/view?usp=sharing		https://docs.google.com/presentation/d/1G9PfSIYUBbAIPZTH_h33RD9UyM49Fvoa/edit?usp=sharing&ouid=103990547172299399362&rtipof=true&sd=true
Saanjh Sahayak	Saanjh is the home for the elderly. The home needs help in tracking health records of the elderly and predicting any risk for diseases. Create an application that helps the Home to perform a clinical decision support system and disease risk prediction using an existing LLM model.	MERN LLM	Sireesha	B208	2	https://drive.google.com/file/d/1U85NLxvVMnc1VrCKM3gTQBcFh73wHWC7/view?usp=sharing		https://docs.google.com/presentation/d/132giva2-aQmGCMrbHJSPUlmNELCnaKp6/edit?usp=sharing&ouid=103990547172299399362&rtipof=true&sd=true
Chat-bot for Medical Queries	LLMs have numerous applications in healthcare domain. In scenarios where doctors may not be easily available, Gen AI models will be useful for addressing patient queries, at least for non-critical diseases. A pre-trained LLM model is a good candidate for developing a Medical Chat Doctor. It should be able to answer patient queries. To provide relevant answers and improve the quality of diagnosis, the model should be fine tuned with custom data. Choose an appropriate model (e.g. Mistral-7B) and search for training data set for fine tuning the model. The patient should be able input problems/symptoms he/she is facing and ask related questions. An appropriate response should be given by the Chat-bot in a couple of sentences. https://huggingface.co/datasets/lavita/ChatDoctor-HealthCareMagic-100K	Gen AI / LLM	Ashok Sharma	B202A	3	https://youtu.be/K83ZYJ6EkM	https://github.com/brevdev/notebooks/blob/main/mistral-finetune.ipynb	
Insurance Quotes LLM	Design and develop a Language Model based system for Health Insurance domain. A pretrained LLM will have to be integrated with a Retrieval-Augmented Generation (RAG) framework populated with Insurance data, for this purpose. The system should take as input health insurance parameters and output Quotes for Insurance.	Gen AI / LLM	Ashok Sharma	B202A	2	https://youtu.be/HrZeBKrtm0	https://medium.com/@kanavanand8/solving-insurance-doubts-using-the-rag-model-with-llm-in-local-911290fa9889	
Agriculture Research LLM	Design and develop a Language Model based system that allows users to query reports/documents from ICAR - CRIDA website. For this purpose, either Fine Tune the LLM model with the given Agricultural data OR use a Retrieval-Augmented Generation (RAG) framework and populate it with this data. Start from a simple Prototype and incrementally add new features to the system e. g. begin with querying English documents followed by adding Hindi version.	LLM	Ashok Sharma	B202A	2	https://youtu.be/fzT-HeO3-0	https://www.icar-crida.res.in	
Cricket LLM	Cricket is a popular team sport can be played in various formats Test, (ODIs), and Twenty20 (T20) etc. Cricket is more than just a sport; it is a cultural phenomenon that unites people from diverse backgrounds and nations. To develop a specialized Large Language Model (LLM) tailored specifically for cricket-related text understanding and generation. Match Summaries and Reports, Player Profiling and Analysis, Cricket News Aggregation, Historical Data Analysis and Insights with video references, Track records, analysis on player performance, Highlights of specific expertise of players, such as batting, bowling, or fielding prowess. Analyze player strategies, Provide historical comparisons between players and their achievements. Identify emerging talents and rising stars in the cricketing world. Create profiles for legendary players, detailing their career milestones and achievements. Provide insights into team dynamics and player collaborations during matches. Highlights of tense moments, dramatic comebacks, and last-minute victories.	LLM	G Badrinath	B203	3	https://youtu.be/3AS1ZJwU1tY	https://dl.acm.org/doi/10.1145/3632754.3632757 https://github.com/Ankush-Chander/cricket-ama/tree/main	
Transport Services LLM	Driving Licence, Registration, permits, taxes, fees, Acts & Rules, Various Forms, procedures and supporting documents. Manuals and guides for various services are available. Most of the services are interdependent. For example obtaining permanent driving license is 2 step process such obtaining learner license, attending driving test and on qualifying for permanent license. Similarly once the validity of license is expiring it need to be renewed. Many more services are offered by transport department. The Chatbot should be first point of contact to citizens which can provide interactive response with information processed using AI techniques. This component will utilize advanced natural language processing techniques to interpret user queries, extract relevant information from extensive datasets, and generate tailored responses in real-time. This solution will streamline the process of finding relevant details, reducing the time and effort required for users to obtain accurate information. Furthermore, the adaptability of LLMs enables continuous learning and refinement, ensuring that the chatbot remains updated and responsive to evolving user needs and regulatory changes.	LLM	G Badrinath	B203	2	https://youtu.be/3AS1ZJwU1tY	https://transport.telangana.gov.in/	
Registration Info LLM	The Registration Department manages a vast array of services critical to citizens, including property registration, stamp duty information, marriage registration, market value inquiries, and more. Documents to find the specific information they require registration processes and regulations necessitates real-time updates and accurate responses to user queries. Therefore, the primary objective is to develop a customized LLM component integrated into the Registration Department's service platform. The Chatbot should be first point of contact to citizens which can provide interactive response with information processed using AI techniques. This component will utilize advanced natural language processing techniques to interpret user queries, extract relevant information from extensive datasets, and generate tailored responses in real-time. This solution will streamline the process of finding relevant details, reducing the time and effort required for users to obtain accurate information. Furthermore, the adaptability of LLMs enables continuous learning and refinement, ensuring that the chatbot remains updated and responsive to evolving user needs and regulatory changes.	LLM	G Badrinath	B203	2	https://youtu.be/RDMYpEgB2AY	https://registration.telangana.gov.in/ https://registration.ap.gov.in/igrs	
KMIT Drone Swarm	Develop an application for controlling the swarm in real-time with dynamic formations and different LED patterns.	Python, Dronekit, AI/ML	SAIKRISHNA	UTKARSH	2	https://youtu.be/klL0-HECTgl?si=32-YbDKl8U-4OfOg		

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Intelligent AR avatar based smart chatbot	Develop an application for scanning the head of a person using Kinect to create a model. Make the avatar talk in Omniverse. Integrate with a backend LLM for running queries.	C#,C++, Omniverse, AI/ML	SAIKRISHNA	UTKARSH	2	https://youtu.be/vY1Wh1qUBc?si=qACGnFyvg8XHvd_J	Mixed Reality	
PlantGuard: Smart Plant Monitoring	Develop an app that collects data from various sensors embedded in the environment, such as soil moisture sensors, light sensors, temperature sensors, and humidity sensors. These sensors continuously monitor the plant's surroundings and gather real-time data on environmental conditions. Using the processed data and insights from the NLP analysis, PlantGuard provides intelligent feedback and recommendations to users regarding their plants' health and care. This feedback can include suggestions for watering schedules, optimal lighting conditions, temperature adjustments, and fertilization requirements.	C#,C++, AI/ML	SAIKRISHNA	UTKARSH	2	https://youtu.be/GBEPvIGkZzY?si=MwxoxmL9qHd_h-7F	https://arxiv.org/pdf/2102.00838v1.pdf https://paperswithcode.com/paper/fine-tuning-bert-based-models-for-plant	
Visitor Management System	Create a comprehensive visitor management system for residential complexes, office buildings, or any secured facility. The system will utilize face recognition for visitor authentication and number plate detection for vehicle tracking.	Python, MERN, AI/ML	SAIKRISHNA	UTKARSH	2	https://youtu.be/uWnRtQnAVR0?si=viA_Amclq4zJBV1j		
GenAI powered Virtual Agent/IVR services	<ul style="list-style-type: none"> - In the era of GenAI/LLMs many customer service providers have started using AI powered solutions to handle customer issues efficiently - This has enhanced the customer satisfaction with round the clock services availability and reduced turn-around-time in resolving customer issues - IVR services are now AI powered to resolve customer issues - This is highly scalable and efficient application of GenAI in customer services domain Requirements/Features of the project: <ol style="list-style-type: none"> 1. Mimic IVR call service using WebRTC 2. The call should be handled by LLM powered virtual agent 3. The domain of customer service can be - hospitality, e-commerce or any domain of the team's choice 4. LLM must be fine-tuned to answer the queries of customers pertaining to the domain chosen by the team. For instance, the standard queries in hospitality and e-commerce domain will be different, so the LLM must be fine tuned accordingly 	LLM, WebRTC	Sripooja	B206	2	https://youtu.be/_9UInf0Cuqg	Power Up Phone Experiences with Conversational IVR - YouTube	
Visual Aid for visually impaired	<ul style="list-style-type: none"> - Use VLM pre-trained models to convert an image or video to text in order to describe the surroundings to a person suffering from visual impairment - Helps to keep a record of surrounding activities for a user who is visually challenged. A care taker can view the history of surrounding activities if needed - Some scenarios <ol style="list-style-type: none"> 1. Describe colors/objects in a scene to a person who is partially blind 2. Raise an alarm in case of hazardous surroundings 3. Conversational bot to describe surroundings to a person suffering from visual impairment Requirements/Features of the project: <ol style="list-style-type: none"> 1. A mobile app should capture picture or video and process it using VLM (scene-to-text) 2. Once the input picture or video is processed, the app should be able to assist the user in answering her/his queries related to the surroundings 3. The app should raise an alarm in case of hazardous surroundings 4. The app should keep a log of the conversation with the user 	VLM (Computer Vision), Flutter	Sripooja	B206	3	https://youtu.be/6x2pxbNTYNo	New AI tool describes surroundings to visually impaired people - YouTube	
Text/Video summarizer	<ul style="list-style-type: none"> - With so many useful videos and blogs available for free on any topic, on the internet, it becomes difficult to summarize from all that information manually - A tool which can take documents or video links of your choice as input and generate a summary of various topics will be quite handy - Some scenarios <ol style="list-style-type: none"> 1. Generate quick reference notes from a list of documents, videos to prepare for an exam 2. Generate list of highlights from an interview/documentary video input Requirements/Features of the project: <ol style="list-style-type: none"> 1. The app must support content from various sources like - documents, video, links to blogs/videos etc. 2. For a single request the summary must be generated immediately and displayed to the user 3. App must also work in the background, i.e., if a user provides a youtube channel as source then the app must look for latest video uploads on that youtube channel 4. Whenever a new video is uploaded on that youtube channel the summarization workflow must get triggered and summary must be sent to the user in the form of a PUSH NOTIFICATION 	LLaMa2 or GPT, LangChain, Streamlit or Flutter	Sripooja	B206	3	https://youtu.be/X-sRZTA6plc	Text Summarization Llama2: how to Use Llama2 with Langchain - YouTube	
Medical_ImgCap	Medical imaging is indispensable in the current diagnostic workflows. Out of the plethora of existing imaging modalities, X-ray remains one of the most widely-used visualization methods in many hospitals around the world. Many healthcare systems outsource the medical image analysis task. This MERN_LLM app aims to generate Medical Image Captioning on Chest X-Rays using LLM. This project can assist and accelerate the diagnosis process of the radiologists.	LLM, MERN	Dr.Devika	UDAAN	2	medical_imageCAP (2).mp4		
LLM_stethoscope	The stethoscope has been considered as an invaluable diagnostic tool. Recent electronic stethoscopes have rendered lung sounds recordable, and it facilitated the studies of automatically analyzing lung sounds. This Flutter_LLM app automatically analyze and classify the respiratory disease sounds using LLM.	LLM, Flutter/Firebase	Dr.Devika	UDAAN	2	llm_stet.mp4		

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VR_Medical_LLM	Medical ultrasound (US) imaging has become a prominent modality for breast cancer imaging due to its ease-of-use, low-cost and safety. US imaging has shown great potential in automated breast cancer detection. This unreal_MERN app identifies breast cancer on Ultrasound images using LLM.	LLM, Unreal, MERN	Dr.Devika	UDAAN	2	VR_Medical_LLM (1).mp4		
Generative_Neurologist	Brain tumor segmentation is an important task in medical image processing. Early diagnosis of brain tumors plays an important role in improving treatment possibilities and increases the survival rate of the patients. The purpose of this MERN_LLM_app is to provide MRI-based brain tumor segmentation using LLM.	LLM, MERN	Dr.Devika	UDAAN	2	gen_neuro.mp4		
PsephologistLLM	Psephology is the study of elections, voting patterns, and political trends. A psephologist analyzes data from polls, election results, and surveys to understand how and why people vote the way they do, as well as to predict future voting outcomes. Role of LLM in Analyzing Election Data Data Analysis: LLMs can process vast amounts of data from previous elections to identify trends, voter behavior, and constituency-wise performance of political parties. Sentiment Analysis: By analyzing social media, news articles, and public forums, LLMs can gauge public sentiment towards political parties, candidates, and election issues. Predictive Modelling: Although predictive modeling for election outcomes is challenging and fraught with uncertainties,	LLM, MERN	Gnanesh	B204	2			https://levelup.gitconnected.com/automating-youtube-script-writing-with-langchain-and-streamlit-a-step-by-step-guide-9786ebac68be
Retail LLM	leveraging LLM technology in retail operations can lead to a more seamless and personalized shopping experience for customers, empower salespersons with actionable insights, and provide mart owners with valuable tools for financial analysis and decision-making across their branches 1. Customer Experience Enhancement Improved Search Capabilities: LLM-powered search functionalities can understand natural language queries, enabling customers to find products more intuitively and efficiently. Personalized Product Recommendations: By analyzing customer browsing and purchasing history, LLMs can provide tailored product recommendations, enhancing the likelihood of conversion and customer satisfaction. 2. Salesperson Support Product Availability and Sales Trends: LLMs can analyze sales data across various branches or locations in real-time, providing insights into product availability and identifying trends where certain products may be underperforming. Salespersons can leverage this information to adjust their sales strategies accordingly. Sales Performance Analysis: LLMs can analyze sales data to identify patterns and factors influencing the progression of certain product sales. This analysis can help salespersons understand customer preferences and adjust their approach to promote these products effectively. 3. Financial Analysis for Mart Owners Branch Performance Summary: LLMs can consolidate data from multiple branches to provide mart owners with a comprehensive summary of financial performance. This includes metrics such as sales revenue, profit margins, and inventory turnover rates, allowing owners to identify areas for improvement and make informed business decisions.	LLM, MERN	Gnanesh	B204	3		https://www.linkedin.com/pulse/trendsgpt-how-set-up-ai-agent-automated-data-analysis-yeddule-ewjsf/	https://www.google.com/search?q=Building+a+data+analyst+agent&og=Building+a+data+analyst+agent&gs_lcrp=EgZjaHJvbnWUyBggAEUEYQdIBBzg5NWowajeoAgCwAgA&sourceid=chrome&ie=UTF-8#ip=1
IPL LLM	LLMs can automatically generate detailed and engaging match summaries, player performance reports, and analyses of key moments in games. This can be particularly useful for sports journalism, blogs, and content creators looking to publish comprehensive coverage of IPL matches LLMs can power chatbots and virtual assistants on websites, social media platforms, and apps dedicated to the IPL. These AI-driven tools can answer fan queries in real-time, discuss player statistics, historical match outcomes, and even provide play-by-play updates during live matches. Virtual Commentators and Narrators For live streaming or creating recap videos of matches, LLMs can be used to script commentary that highlights key moments, provides statistical insights, or adds historical context to the performances seen on the field.	LLM, MERN	Gnanesh	B204	2		https://www.geeksforgeeks.org/ipl-2023-data-analysis-using-pandas-ai/	

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Chat with Author /TextBook	<p>An Agent Helps to Automated chat with Author while Providing the Query provides accuracy results. we'll create an application that enables you to ask questions about Selected Authors Textbook(PDFs and receive accurate answers.</p> <p>Train GPT on PDF documents and fine-tune it to your specific use case. Experience the seamless user interface as you upload PDFs, ask questions, and receive prompt answers from the LLM.</p> <p>Prerequisites: (an open-source Python, Javascript, Flask framework, Basics on OpenAI) Discover Langchain's capabilities in training GPT models on your data and generating personalized Explore text embeddings and their integration with Langchain using OpenAI's API. Automate tasks and improve efficiency using Langchain with Streamlit.</p> <p>Outcome: You'll get Q&A on given topic You'll learn how to use LangChain (a framework that makes it easier to assemble the components to Pinecone - a 'vectorstore' to store your documents in number 'vectors'. You'll also learn how to create a frontend chat interface to display the results alongside source documents.</p>	LLM, MERN	Shanker	B205	2			https://colab.research.google.com/drive/1Fk9um3Af_av0WvayD01gVijPHAxzQNLp?usp=sharing#scrollTo=3igYIWJISjvS
Fitness Guru LLM	<p>An Agent for Automated Planning and Exercise Program Building</p> <p>1. We dive deep into the world of automated planning for your workout routines using advanced AI agents. Whether you're short on time, need specific workout plans, or just want to incorporate cutting-edge technology into your fitness regime.</p> <p>2. We explore how to leverage large language models and LinkChain to personalize your exercise routine</p> <p>Step-by-Step Process: Research has used generative AI to develop a digital fitness coach that improves upon existing solutions in terms of accuracy and realism. The fitness coach provides real-time interaction by encouraging, correcting, and helping the user meet their fitness goals.</p> <p>A video stream of the user exercising is processed by our action recognition model. Based on the recognized action, our stateful orchestrator grounds the prompt and feeds it to the LLM. The fitness coach provides the LLM answer back to the user through a text-to-speech avatar. This is made possible thanks to three key innovations: a vision model that is trained to detect fine-grained fitness activities, a language model that is trained to generate language grounded in the visual concepts, and an orchestrator that coordinates the fluid interaction between these two modalities to facilitate live dialogue coaching feedback.</p> <p>The result is a fitness coach that provides real-time interaction for an engaging and dynamic user experience.</p>	LLM, AI	Shanker	B205	2		Fitness coaching using an LLM grounded in real time vision - YouTube	https://colab.research.google.com/drive/1-KfH5yE0Epi10_OW1upzn-nfPXRPy_7X?usp=sharing
Blockchain LLM	<p>In this LLM Project, We will Provide a research paper link (IEEE/SCOPOUS/SPRINGER/WEB OF SCIENCE). By using Webscrape extract research paper data including references link in those papers. Now train that data Model in the Form of Q&A Formate. When the User interacted with Agent on any query related to paper, it as Prompt the required data & Produce the Summarization of paper including Math Formulas aso.</p> <p>Prerequisites: In this LLM project, we will use langchain, openai API, and streamlit to build a new research tool that can be used by equity research analysts to conduct their research.</p> <p>Technolgy Uses: ChatGPT, SERP API, Langchain, React, Webscrape</p> <p>Outcome: Summarization of Research Paper</p>	LLM, MERN	Shanker	B205	2		<p>LLM Finetune dataset for Crypto and Blockchain</p> <p>https://www.kaggle.com/datasets/amalrajsingh/crypto-currency-blockchain-and-stock-market-qa</p>	https://www.kaggle.com/datasets/adilbhatti/bitcoin-and-stock-exchanges
RecipeRealm	<p>Most often, we get into a situation when we want to cook something delicious, however, we are short on ingredients at our home. It also creates a lot of confusion about what to cook with the available ingredients. Further, we might not have accessibility to more ingredients from the nearby market due to various reasons like non-availability.</p> <p>In such a situation we keep on searching for recipes that match our ingredients online, but hardly get any results and that too takes a lot of time, and ultimately we return to our kitchen disappointed. There's a need for a system that could actually take ingredients as the input and give us the list of most matching recipes that could help us make delicious food at our homes.</p> <p>Our project aims to make a user aware of the various dishes which can be cooked from the available set of ingredients being input by a user.</p> <p>Scrapping Module - Scrapping the dataset for ingredients, recipes, etc.</p> <p>Training Model - Fetching the data and display the output based on the input.</p> <p>Developing UI - Developing a user-friendly UI to present the recipes based on the user inputs</p>	LLM,MERN	Pooja G & Seshu	B202B	2			

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Trip Planner	<p>Your Intelligent Travel Companion</p> <p>The role of artificial intelligence within the business world has increased dramatically over the past decade, and the last few years, in particular, have seen much more widespread adoption in the travel industry.</p> <p>The aim of the project is to develop a smart travel assistant, helping you plan amazing trips effortlessly. It's like having a knowledgeable friend who knows all the best places to visit and stay, tailored just for you!</p>	LLM,MERN	Pooja G & Seshu	B202B	2			