

Career Guidance and Roadmaps to success using GPT-Model

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ABSTRACT- In this growing world of technology and education, proper career counseling and guidance are primary for the bright minds of our nation. Our system is completely AI-driven and uses a GPT model to generate a personalized roadmap for the user. Many countries in the world are using LLMs to guide and provide career counseling to students based on their own interests. Users like conversations and an in-depth understanding of requirements. Our GPT model is trained for the Indian Education System. This GPT model, in the form of a chatbot on our portal, provides services of a career counsellor and offers real-time personalized roadmaps, defining prerequisites for any prestigious government or entrance exams. Easily available and accessible across all devices and platforms, this paper thoroughly explains the problem and the implementation of our solution to the problem of finding the proper route to one's educational or career venture.

KEYWORDS- Artificial Intelligence (AI), Career Counselling, LLMs (Large Language Models), Chatbot, GPT-Model, AI-Driven Systems.

I. INTRODUCTION

In our country, with the current development of our nation, the world of education is also expanding day by day. However, when it comes to choosing careers, we often end up selecting the same fields repeatedly: Engineering, Medicine, Commerce, Business Studies, or some reputed Government Exams. Choosing a career can have a lifelong impact, and if it doesn't align with a person's interests, passion, and dreams, it may result in constant suffering. A right career selection or transition not only benefits the candidate but also helps in nurturing bright minds in suitable fields. Due to the pursuit of a suitable and successful career, many bright and talented students have to abandon their passions due to a lack of knowledge about what to do with their talent. Many people miss out on the right career opportunities due to a lack of guidance availability. This highlights the significance of effective career guidance and finding the path to pursue one's dream career.

There are various strategic tests and methods available to provide proper career guidance, but this service is not accessible to all citizens of our nation. Strategies include conducting tests to determine a suitable career for the candidate based on their performance. Examples of such tests and methods include various IQ tests and theories such as Holland's theory, Trait and Factor theory, CIP theory, and many more. However, the problem for the

masses remains the same: the need for career mentors and guides is an essential part of a student's life and for individuals looking for career transitions. [1][2]

Here comes RouteED, our solution to the problem, which provides a crystal-clear and concrete solution for the issue of career counseling. With the current advancements in technology and the upcoming era of Artificial Intelligence, RouteED provides a system for people who are clueless about how to pursue a certain career. Using an advanced GPT model and trainer, RouteED presents EdAcad GPT, which will serve as your personal guide or mentor, helping you pave the path to your success. [2]. With RouteED, students can:

A. Get a Personalized Roadmap to Success:

Our roadmaps are crafted based on each student's distinct academic goals, interests, and strengths. We consider factors such as the student's current GPA, desired career path, and extracurricular activities to develop a roadmap tailored to their individual needs.

B. Track their Progress and Stay Motivated:

RouteED facilitates students in tracking their progress towards their goals and staying motivated. Students can observe how they are performing compared to their roadmap and receive personalized reminders to complete important tasks.

C. Get Help From Our EdAcad GPT:

RouteED offers students access to a team of experts who can assist them with any aspect of their education. Whether they require assistance in choosing the right courses, preparing for standardized tests, or writing college essays, our experts are here to aid them in succeeding.

The objective of RouteED is to provide students of all ages and levels with the tools and resources they need to develop a personalized roadmap to success.

RouteED's objective is to help all students achieve their educational goals, regardless of their background or circumstances. RouteED believes that all students have the potential to succeed, and that the right support can make a big difference. Here are some specific examples of how RouteED can help students achieve their educational goals:

- **Intermediate Students:** RouteED can help students develop a college admissions plan, and choose the right college for their needs and interests.
- **College students:** RouteED can help college students stay on track to graduate on time, and choose the right

courses for their major. RouteED can also help students prepare for graduate school or the workforce they wish to join.

Adults or Office goers: RouteED can help adults who are looking to make a career change. RouteED can help adults identify their educational goals, choose the right courses, and prepare for standardized tests.

Table 1: Use-Cases of our AI-Model

Mode	Role of AI	Role of User	Situation Summary
AI as Career Counsellor	AI acts as an interactive virtual career guide with its goal, developing career guidance practices and processes.	User provides necessary information to AI-Model to achieve desired goal.	Virtual career counsellor guides student towards its goal and provide step by step process to achieve the goal.
AI as collaborator	AI learns and performs career guidance practices in real-time together with user for a shared goal	User works together with AI, teaching it and validating its working regularly	Virtual online counsellor delivers 24/7 guidance alongside staff.
AI as assistant	AI assists Users in their career guidance practices in chosen areas with well-defined goals	User assigns tasks to AI and provides well-defined goals and instructions.	Virtual assistance in decision making by providing correct measures and resolving doubts.
AI as tool	AI is used by Users in career guidance practices in singular tasks with set goals	User uses AI-based tools and brings context to its results.	User utilizes the tool efficiently by clear definition of goal and action required.

II. PROGRESSIVE IMPLEMENTATION STRATEGY OF AI SYSTEMS

A progressive strategy of AI system refers to a methodical approach to rolling out changes or new initiatives in stages, rather than all at once. This approach is often used to manage risk, to make the implementation process more manageable, and to allow for adjustments to be made based on feedback or early results from the initial stages. ChatGPT, an AI-powered chatbot designed with generative pre-trained transformer architecture, have intrigued millions of people from diverse backgrounds since its first release, and generated excitement with its groundbreaking performance in numerous use cases they have been tested. Its ability to generate coherent and contextually relevant responses across a wide range of topics have also attracted the attention of researchers, and several scholars have investigated the potential uses of this AI-based tool to promote scientific work. The current study was designed with a similar purpose, and aimed to conduct scientific research on the effects of COVID-19 pandemic on education with a collaborative analysis of human-artificial intelligence. The general outline of implementation includes six steps: conceptualizing, testing, evaluation, partial implementation, re-evaluation, and full implementation. This progressive approach allows for better management of potential risks and problems that can occur.[4]

A. Developing a functional AI Chatbot (Conceptualizing):

The first step is to choose an appropriate LLM for developing the chatbot and use a pre-developed chat UI to

create an MVP ready for usage and testing. The choice of LLM would depend on numerous factors, including the specific capabilities of the model, cost considerations, and the model's compatibility with the intended platform. ChatGPT can serve as an assistant for both instructors and students. For example, ChatGPT can help instructors generate exercises, quizzes, and scenarios for student assessment, concept checking, and exam preparation. ChatGPT can be a professional tutor for developing skills in the areas of programming and report writing. ChatGPT can support learning by assisting in answering questions, summarizing information, and facilitating collaboration and group discussions.[5]

B. Integrating the Chatbot into a web platform (Integration):

To ensure accessibility, the chatbot should be integrated into a web-based platform that students can access at their convenience. This integration involves developing a user-friendly interface and ensuring the smooth functioning of the chatbot on the platform. However, the need for web services servers and API access could incur substantial costs, which is a factor to be considered.

C. Data collection and personalization (Testing and Evaluating):

To provide personalized guidance, the chatbot would need access to information about the students and the expertise of the professional student guidance core. This information could be collected through an initial questionnaire about when the students first used the system and from a feedback form sent to the orientation professionals that work with the students. Based on the

student's interactions and feedback, the knowledge base for contextual AI orientation can offer personalized advice and guidance.

D. Continuous learning and updating (Re-Evaluating and Re-Implementation):

AI LLM models are dynamic tools that can learn and improve over time with the help of a fine-tuned knowledge base. Through continuous feedback, the chatbot can refine its guidance strategies, increasing its effectiveness over time.

III. THE CORE: DATA COLLECTION AND PERSONALIZATION

To provide personalized career guidance, the chatbot needs access to information about the expertise and experiences of professionals that work with students. This information could include academic performance, interests, career aspirations, and other relevant data. To collect this data, students and professionals could be asked to fill out a detailed questionnaire when they interact with the chatbot.

The questionnaire could include questions about the student's aspirations, subjects of interest, extracurricular activities, career goals, and other relevant information. The responses to this questionnaire are then used to personalize the guidance provided by the chatbot.

To ensure the privacy and security of the data, all data collection processes should comply with relevant data protection regulations.[7]

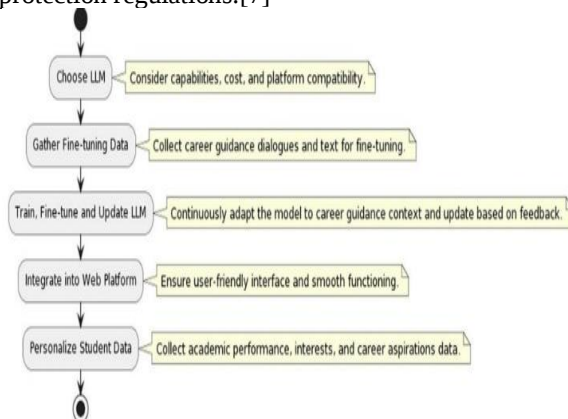


Figure 1: Implementation Strategy of LLM (GPT)

IV. RELATED WORK

The Ben M'Sick Faculty of Sciences, Hassan II University in Casablanca, Morocco, Big Data and Data Science Master cycle case study is a prime example of how AI-driven orientation may be implemented successfully. To help students integrate smoothly into the workforce, a highly advanced chatbot was purposefully created to act as an e-orientation agent in this particular scenario. In contrast to a traditional AI agent, this chatbot explores the field of professional psychometrics to help students understand their personality types and match them with appropriate job options.

In a similar vein, the Finnish university Häme University of Applied Sciences has adopted a comprehensive AI system for career counselling. This sophisticated

technology uses emotive data in addition to user inputs to provide a personalized and nuanced career plan for each user. This progressive methodology represents a significant advancement in the use of AI in learning environments, showcasing the ability to leverage emotional intelligence in conjunction with conventional data sources to improve the accuracy of career counselling. Chatbots and AI systems are being used more and more for career advice on a variety of web portals, educational institutions, and EdTech projects.

The author Bilon (2013) has discussed current trends in research and theory for career counselling. Fritz (1997) has defined the AI system as a computer programmed system that performs just like a human brain but it differs in working. According to Fee and Holland-Minkley (2010), there should be good pedagogy so that students improve their ability to analyze and solve complex computational problems independently. Gorad et al. (2017) have discussed the perspective of data mining for career counselling whereas Hendaheva et al. (2006) have mentioned an artificial intelligence approach for effective career guidance. An AI-based system is used as a career guidance cell which helps students in selecting the right course for bachelor's degree courses after senior secondary.[11]

The effectiveness of these ongoing programs, particularly in helping working professionals and students make informed career decisions, validates the viability and importance of our suggested paradigm. It is clear from these effective implementations that the use of AI in job advising represents a paradigm shift in how people view their professional paths rather than merely a technology fad.

V. METHOD

This paper contains a four-step structured methodology to demonstrate the working of our Project **RouteED: Your Educational Roadmap to Success**, an AI integrated web-portal. This methodological approach ensures a system is centred on the need of Indian students addressing unique cultural and financial challenges as well. This four-step process:

A. Data Collection:

Our primary data collection will be our Personalized Database which ensure coverage of all academic routes and roadmaps for each designated profession and career which is being followed in India. On the other hand, we will be collecting the data from users through their conversation with the GPT-Model (EdAcad GPT) and surveys conducted at schools, institutions and educational organizations.

B. Web App Development:

We are going to use MERN stack and develop the whole software from scratch which will help us to customize our project and make it more scalable. For AI-Integration we are using GPT-trainer provided by OpenAI which is a go to Chatbot specially designed to be integrated in Web portals or web sites providing services.

C. GPT-Model Training:

We will utilize the uniquely created data collected from the research and by our team, The Primary data Collection to train the GPT-model by pushing our data through GPT-trainer. The EdAcad GPT will constantly be updated using the new data collected on monthly and weekly basis to be aware of upcoming updates and news regarding education or any profession.

D. Testing:

We plan to establish rigorous evaluation protocols that include both qualitative and quantitative methods. We will measure user engagement, satisfaction, guidance accuracy, outcome tracking etc. Over time, we will be able to demonstrate the evolution and effectiveness of GPT-Model and identify any required adjustments.

AI and ML advancements have given rise to sophisticated Language Models (LLMs) like Generative Pre-trained Transformer (GPT), Pathways Language Model (PaLM), and Low-Latency Attentive Memory Architecture (LLAMA2). These cutting-edge tools, developed by industry giants such as OpenAI, Google Alphabet Inc., and Facebook Meta Inc., have revolutionized the processing and comprehension of extensive text data.

LLMs are trained on vast amounts of text data from the internet, learning from billions of sentences to understand the semantics and structure of User language. Notable LLMs include OpenAI's GPT, which is the most popular, and its debut on the tool called "ChatGPT" has opened the door to many applications and innovations not only in the educational or technological sectors but in many other fields as well.

VI. GPT-TRAINERS FOR WEB

GPT trainers, the backbone behind large language models (LLMs) like me, have revolutionized the way we interact with machines. These complex algorithms empower LLMs to process and generate human-quality text, making them valuable tools for various web applications. Large language models like BARD and ChatGPT, which weave writing that resembles that of a human being and conduct intelligent conversations, would not exist. As the master builder, this intricate algorithm painstakingly shapes enormous volumes of data into the basis of our capabilities. Through text, code, and document analysis, GPT Trainer gives BARD and ChatGPT the ability to comprehend subtleties of human language and produce writing that accurately duplicates it.

A universe of opportunities is unlocked by this instruction. Imagine chatbots having lifelike conversations with you that make you wonder if you're speaking to a real person, or websites creating personalized material that feels uncannily human. This is the magic that the GPT Trainer works out. It's the reason you can interact with BARD and ChatGPT in ways that have never been possible. Integrating GPT trainers into web platforms, however, can be a double-edged sword. While their potential is undeniable, challenges arise when seamlessly incorporating them into existing website infrastructure.

A. Flexibility and Modification:

GPT trainers are incredibly flexible, enabling modification for a wide range of applications, including machine translation, chatbots, and content creation. They can be used for a variety of online applications because of their versatility.

B. Strong Performance:

GPT-enabled LLMs are capable of handling challenging language tasks with remarkable accuracy and fluency when given the right training. On web platforms, this can greatly improve user experience.

C. Open-source Availability:

A number of GPT trainers are freely available, bringing them within the reach of developers globally at a reasonable price. This encourages experimentation and creativity among web developers.

D. Data Security and Privacy:

GPT trainers often require large amounts of training data, raising concerns about data security and privacy. Implementing robust safeguards is crucial to protect user information.

E. Integration Complexity:

Integrating GPT trainers seamlessly into existing web infrastructure can be complex, requiring expertise in machine learning and web development. This can pose challenges for developers with limited technical knowledge.

VII. DATA FOR AI GUIDANCE

Intelligent tools can be useful in career guidance only if we have meaningful data for them to process. In trials the lack of location and scheduling information rendered AI-powered suggestions of studies or employment irrelevant. Data are needed first for initially training the systems, and then in a continuous and dynamic manner for delivering services. The data used to train future AI models will also shape future services. Career guidance extends this into highly dynamic labour market information. Ensuring access and interoperability in the various information sources should be a priority.

Participants referred to various information relevant to career guidance. Figure 1 categorizes these into overlapping personal, career and education information. In continuous guidance, learners should be able to control their own data, submitting it to the platforms and service providers they use for developing competences and accessing career services. This type of "My Data" approach to competence and career information would support learners' agency. Shared data would enable service providers to develop and deliver services accessible throughout an individual's education and work life, not only tied to a specific enrolment or employment.

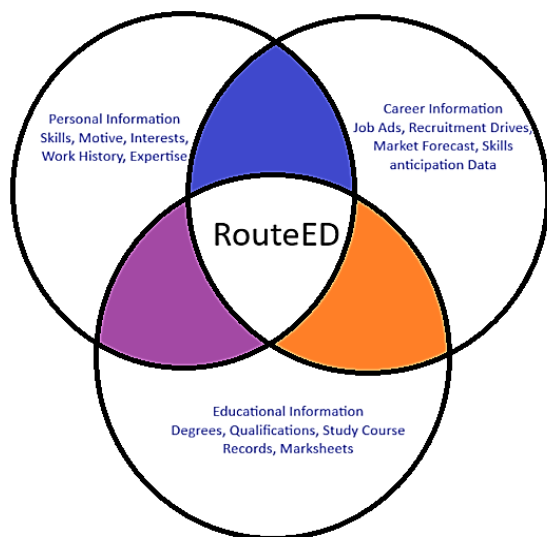


Figure 2: Data Sources of Model

VIII. ENSURING DATA INTEGRITY, PRIVACY, AND PROTECTION

To ensure effective responses to students' guidance requests, robust data-safeguard measures should be implemented. These measures should be designed to protect students' academic records and personal information, which are necessary for the AI-oriented system to provide personalized guidance. Compliance with relevant data protection regulations is crucial, and the data should be stored securely and used solely for the purpose of providing career guidance. Regular audits and transparent data policies can also be effective strategies for maintaining students' trust in the system.

IX. CHALLENGES AND OPPORTUNITIES

There are some issues and challenges in setting up an AI for monitoring and guiding one to their careers. Some of them are:

Algorithmic bias: AI systems have the potential to produce biased suggestions by reinforcing biases found in the training data. To guarantee inclusion and justice, algorithm development and data collection must be done with great care.

Limited Comprehension of Human Factors: AI may find it difficult to comprehend the subtleties of human motivations, values, and personalities, all of which can play a significant role in a person's job decision. In order to evaluate AI recommendations and offer comprehensive counsel, human intervention is still necessary.

Job Market Uncertainty: AI may find it challenging to correctly forecast future developments in the labour market due to the quick speed at which technology is developing. To guarantee that the data is accurate and up to date, human review and routine updates are required.

Over-Reliance on Data: People risk relying too much on AI suggestions at the expense of reflection and self-examination, two crucial components of effective career planning.

Data Privacy Issues: Providing AI-powered systems with personal data gives rise to privacy issues.

Maintaining confidence and the moral application of technology requires ensuring openness and data security. Despite these challenges, the potential advantages are vast. One important benefit is the ability to receive individualized coaching. These tools elevate career assistance by giving each student personalized advice based on their academic standing, hobbies, and goals. The opportunities are endless and the effectiveness of use of AI in field of Education is immense.

X. RESULT

A. RouteED:

Your Educational Roadmap to Success is meant to disrupt the Indian education system and help millions of people discover their dream careers. It has effectively established a new standard in this regard. The use of EdAcad GPT, a state-of-the-art tool that guarantees the precision and effectiveness of the actions needed for users to traverse their educational journeys based on their individual interests, abilities, and goals, is at the heart of this creative initiative.

B. Device Accessibility:

Services provided by RouteED and EdAcad GPT are available around-the-clock on all devices. Its smooth accessibility improves the user experience by enabling people to interact with the platform whenever it's convenient for them, creating a user-friendly atmosphere.[9]

C. Personalized Roadmaps:

EdAcad GPT generates personalized roadmaps tailored to each user's skill set, capabilities, interests, and professional psychometrics. This customization ensures that the guidance provided is uniquely suited to the individual, maximizing the relevance and effectiveness of the educational roadmap.

D. Empowering Career Counselling:

RouteED empowers career counselling by leveraging the capabilities of the GPT model. Users can freely engage in career counselling sessions, posing questions and seeking clarification during the entire duration. This interactive approach fosters a dynamic and supportive environment for users to make informed decisions about their educational and professional paths.[9]

E. Data-Driven Insights:

EdAcad GPT generates roadmaps based on meticulously collected and updated data during training. This data-driven approach enhances the accuracy of the guidance provided, offering users confidence in the reliability and relevance of the insights shared by the platform.[9]

F. User Satisfaction and Confidence:

RouteED places a strong emphasis on user satisfaction, continuously adapting to user needs. The platform's commitment to understanding user requirements ensures that individuals gain confidence in their career choices, supported by the accurate and tailored guidance provided by the GPT model.

XI. CONCLUSION

RouteED's ground-breaking solution, EdAcad GPT, is a revolutionary turning point in the career counselling industry. This innovative tool has proven remarkably effective in tackling the complex difficulties related to job transitions and decision-making. Its technology-driven, customized, and approachable methodology has the potential to completely transform the field of career counselling and usher in a new era of empowered and educated professional decisions. The success of EdAcad GPT represents a paradigm change toward a future in which people's pursuit of informed and rewarding professional options is greatly aided by artificial intelligence. The incorporation of cutting-edge models and technologies like EdAcad GPT becomes essential as we traverse an ever-more complex and dynamic professional landscape, offering continuous help to people looking for career guidance.

Enhancing accessibility, customisation, timeliness, and user happiness is a major benefit of investing in technology-driven career counselling solutions. With its cutting-edge features, EdAcad GPT is a shining example of advancement in this area. Through the use of artificial intelligence, RouteED is doing more than just providing a solution; it is actively fostering the development of a society in which people are able to pursue jobs that are in line with their goals and passions. With this revolutionary method, a workforce with high competence, deep engagement, and intrinsic drive can be developed.[8]The importance of EdAcad GPT goes beyond simple technology advancement; it represents a change in the foundation of career advising. The tool's capacity to adjust to specific requirements and offer thoughtful direction signifies a break from conventional, one-size-fits-all methods. In an era where career paths are becoming more varied and complex, this tailored and nuanced approach is essential.

Moreover, EdAcad GPT is a shining example of inclusion, dismantling obstacles that have historically prevented people from receiving high-quality career counselling. Because of the tool's accessibility, people from different socioeconomic backgrounds can take advantage of its insights and recommendations, regardless of where they live. The democratization of career counselling is in line with larger societal objectives of diversity and equal opportunity, resulting in a workforce that is not only well qualified but also diverse in terms of abilities and viewpoints. While there are many questions to be asked, the current study reviews the literature in order to reveal the potential effects of ChatGPT on education as a whole. The potential implications, possibilities, and concerns about the use of ChatGPT in education are disclosed as mentioned in the literature.[10] When we consider all of EdAcad GPT's advantages, it's clear that RouteED is dedicated to more than just making money. It is an endeavour to develop a labour force that is not only skilled in their specialized disciplines but also genuinely happy in their chosen fields of work.

In Conclusion, EdAcad GPT is a shining example of inclusion, dismantling obstacles that have historically prevented people from receiving high-quality career counselling. Because of the tool's accessibility, people from different socioeconomic backgrounds can take

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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