International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 04 | April - 2023 Impact Factor: 8.176 ISSN: 2582-3930

CareerAdvisor- A Web-based application for career guidance

Ashwin Kumar[a], ChetanKumar Mistry[b], Adel Sheikh[c], Bhavna Arora[d]

[a]*Student (UG) Department of Computer Engineering,*
Atharva College of Engineering,
Mumbai University.
ashwinkumar-cmpn@atharvacoe.ac.in
[b]*Student (UG) Department of Computer Engineering,*
Atharva College of Engineering,
Mumbai University.
chetankumarmistry-cmpn@atharvacoe.ac.in
[c]*Student (UG) Department of Computer Engineering,*
Atharva College of Engineering,
Mumbai University.
mohammedsheikh-cmpn@atharvacoe.ac.in
[d]*Assistant Professor(UG) Department of Computer Engineering,*
Atharva College of Engineering,
Mumbai University,
bhavnaarora@atharvacoe.ac.in

Abstract

Career guidance is crucial for any aspiring individual in the modern world. It is essential to know what path in life will be best suited for each person as per their interests and skills. Lack of knowledge of the same could lead to failure, dropout, integration difficulties, unemployment, etc. Though the existing system seems to be more than satisfactory, our project will add new dimensions to this idea to make it more appealing to the general populace. In this project we will by applying Artificial Intelligence to solve this problem. A lot of what humans do to guide students to find and get to their preferential career goal can be automated. This can be done if a suitable amount of data from the appropriate sources was fed to the AI algorithm, which will act as knowledge base in order to make realistic inferences about a person's career. Simply put, we will be providing automation for three key aspects of career guidance, i.e. Finding a suitable career, Displaying several career paths to reach the same, Providing self-improvement resources to help the students reach their respective goals in a specified amount of time.

Keywords: career, counselling, guidance

1. Introduction

Choosing a career isn't constantly a simple task for students, particularly since the decision should be based on a few criteria and at a generally early age. This significant decision influences the academic and professional existence of the student. This project introduces an improvement over the existing career guidance methodologies. Most of the career guidance alternatives involve guidance counsellors, who may not be available in every school or educational institution.

2. Purpose

The goal of this system is to help students and working professionals achieve their specific career goals based on their interests, skills and general compatibility with the corresponding work environment. The proposed system will assess users on different parameters to recommend a career path. Along with providing the career path, we will also help users in acquiring the required skills needed to achieve the same.

3. Scope

In the current system, guidance and counselling have been limited to secondary schools in most cases. The bedrock of education i.e. the primary schools has been completely neglected. Though counsellors are found in secondary schools, the number of full-time counsellors is highly insignificant and cannot cater for the number of students. Some counsellors are not committed or diligent and can sometimes be unapproachable. We are proposing a solution where we can automate most of these services provided by the counsellors, by implementing a web-based application where users can test themselves, find and choose career paths, and gain access to resources which are most suitable to them.

4. Literature Survey

[1] "AI based Career Guidance", IRJET, Vol.07,No.05, May 2020.

Describes the drawbacks of traditional guidance methods

and proposes a new system by utilizing a deep learning technology namely (ANN) to analyze the user traits. The proposed system developed is a web-based intelligent career guidance system that assists a student to independently choose a career whenever and anyplace with the utilization of computers or portable/advanced mobile phones as candidates look for admission into different fields of study.

[2] "Online Career Counsellor System based on Artificial Intelligence: An approach", IORD,Vol. 8,No. Issue. 02, 2020.

The Authors of this paper have discussed several ex-isting methods. They have created a system where students can give a test, and on the basis of this test, results are provided with the help of the Na¨ıve Bayes algorithm. The main aim of this system is to providean overview of the Artificial Intelligence techniques that we used to predict the performance of the student. This system will also be focusing on the way we are using prediction algorithms to identify attributes in student data.

[3] "Smart Career Guidance and Recommendation System", IJEDR, Vol. 7, No. 3, 2019.

In this paper, the authors identify and apply suitable algorithms for Student specific skill-oriented course recommendation systems in the CSE/IT domain. Smart Career Guidance Recommendation System is developed for recommending skilling courses and certification courses in the CSE/IT domain. A substantial amount of literature focuses on predicting student performance in solving problems or completing courses.

[4] "Artificial Intelligence for Career Guidance – Current Requirements and Prospects for the Future", IAFOR, Vol. 9, No. 4, 2021.

The authors conceptualize different modes of agency and maturity levels for the involvement of artificial intelligence in guidance processes based on the results. This paper reports on the development of using artificial intelligence to support and further career guidance in higher education institutions. Results from focus groups, scenario work and practical trials are presented, mapping requirements and possibilities for using artificial intelligence in career guidance from the viewpoints of students, guidance staff and institutions.

[5] "An Intelligent Career Advisor Expert System", IJARP, Vol. 3,No. 4, April 2019.

This paper describes the use of an expert systemwith a Knowledge base and Inference engine to provide appropriate advice to students for their careers. This system gives a counseling report using student skills and areas of career interest. This system allows users to fill in their personal information, area of career interest, subject, and grades.

[6] "Career Counselling Chatbot on Facebook Messenger using AI", School of Computing University of Namibia, August 9-12, 2021.

With the use of Facebook SDK, the Messenger Plat-form APIs, JavaScript, and the Wit.ai API, a Facebook chatbot system was created that responds to student queries in real time. This will allow them to consider careers they may not have thought available to them, that would be more fulfilling and satisfactory than one that does not align with their interests.

[7] "Scrutinising Artificial Intelligence based Career Guidance and Counselling Systems: an Appraisal", IJIRI, Vol. 7, No. 1, January - March 2019.

This paper speaks of the usefulness or effectiveness of several AI-based career guidance technologies including Expert Systems, ANN, etc. This paper begins with prominence on career guidance and counseling followed by scrutinizing the scope of various technologies in contributing a solution. Besides, extensive work performed in this field has been critically surveyed. Ultimately, the challenges and open problems were implications of the conducted survey. The paper identifies directions for potential research in this domain, hoping to drive the attention of the research community.

5. System Architecture

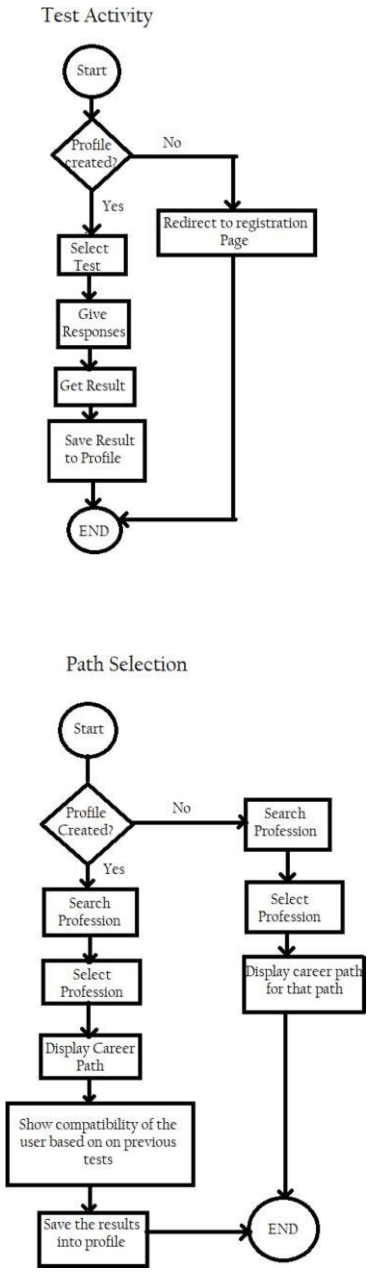
5.1. Career Compatibility Test Component

Here, users can test themselves using predefined and verified tests like Sokanu Career Tests which uses Machine Learning algorithms to determine a person's temperament, archetype, and interests. This information will be used to determine which career environment will be best suited to them. There are other such tests such as the Predictive Index test which assesses a person's cognitive abilities to predict their efficacy in certain jobs. These scores can be used to determine an appropriate career path for them.

5.2. Career Guidance Component

This involves finding a career path that is suited to the person's current preferences and profile structure. If the scores are available then it could be useful in determining a better path for that user. Once a path is selected or preferred by the user, our website can provide them with appropriate resources in order to improve the skill sets of the user. Ultimately, this component will be used to help the user achieve their goal in a short period of time.

5.3. Flowchart



5.4. Functional Requirement Specifications

- **Test Module**
  Here, users can test themselves using predefined and verified tests like Sokanu Career Tests which uses Machine Learning algorithms to determine a person's temperament, archetype, and interests. This information will be used to determine which career environment will be best suited to them. There are other such tests such as the Predictive Index test which assesses a person's cognitive abilities to predict their efficacy in certain jobs. These scores can be used to determine an appropriate career path for them

- **Path Finding Module**
  This involves finding a career path that is suited to the person's current preferences and profile structure. If the scores are available then it could be useful in determin- ing a better path for that user. Once a path is selected or preferred by the user, our website can provide them with appropriate resources in order to improve the skill sets of the user. Ultimately, this component will be used to help the user achieve their goal in a short period of time.

- **Profile Management Module**
  Here the users can manage/update their personal details like academic scores, achievements, etc. The user can also manage/update their area or field of preference. The scores from the specific tests taken by the user will also be visible in the profile module.

5.5. Non-Functional Requirements

Hardware must be capable enough so that it can run the system smoothly without heavy delay or lags in the process. Also since the application is based on the internet, there is a smooth network bandwidth connection required for the users.

6. System Evaluation

6.1. Advantages

1. All-in-one: Every service needed by a person to get an idea about their career is included in the application. From the initial step of figuring out a compatible career all the way to the successful completion of the prerequisite courses to achieve the same.

2. Reliability: Pathfinding depends entirely on the user's skill, preference, and compatibility with the work environment. All of this information simply needs the user's input. It does not depend on the counselor's involvement and works on the basis of a verified career compatibility test.

3. Speed: The entire process could take up to a maximum of 10 minutes, and the resources provided could be accessed and used at the user's leisure. Ease and speed of access are crucial when it comes to deciding and preparing for a career.

6.2. Disadvantages

1. Competition There are many other applications currently existing in the market that provides many more features than are currently included in the application.

2. Lack of a social component: Applications like this are more effective when a social component is involved. Even though there is a feedback system, it does not compare with access to a large network of people similar to you.

7. Conclusion

In this project, we have incorporated three services: Career Test, Career Path selection, and Resource provision for the chosen career. These services were based on actual guidance techniques used for career counseling. Due to the reliability of these services, they would prove to be crucial for many aspiring individuals looking for a suitable career.

References

[1] "AI based Career Guidance", IRJET, Vol.07,No.05, May 2020.

[2] "Online Career Counsellor System based on Artificial Intelligence: An approach", IORD,Vol. 8,No. Issue. 02, 2020.

[3] "Smart Career Guidance and Recommendation System", IJEDR, Vol. 7, No. 3, 2019.

[4] "Artificial Intelligence for Career Guidance – Current Requirements and Prospects for the Future", IAFOR, Vol. 9, No. 4, 2021.

[5] "An Intelligent Career Advisor Expert System", IJARP, Vol. 3,No. 4, April 2019.

[6] "Career Counselling Chatbot on Facebook Messenger using AI", School of Computing University of Namibia, August 9-12, 2021.

[7] "Scrutinising Artificial Intelligence based Career Guidance and Counselling Systems: an Appraisal", IJIRI, Vol. 7, No. 1, January - March 2019.

Acknowledgements

Thanks to our guide Prof. Bhavna Arora, for her invaluable guidance and for giving us useful inputs and encouragement which provided us with enough confidence to push through the challenges and complete the project.