A

Synopsis

on

"EduPath: Personalized Educational and Career Guidance"

is submitted to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur in partial fulfillment of the requirement for the award of bachelor of technology

in

Electronics and Telecommunication Engineering

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S. B. JAIN INSTITUTE OF TECHNOLOGY, MANAGEMENT & RESEARCH, NAGPUR
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"Emerge as a center for quality education in Electronics & Telecommunication Engineering, so as to create competent professionals"

Certificate

This is to certify that the synopsis entitled "**EduPath: Personalized Educational and Career Guidance**" is successfully submitted by **Mr. Vishal Tikle, Mr. Ritik Gulhane, Mr. Nikhil Lanjewar, Mr. Atharv Pise, Ms. Poonam Tiwari, Ms. Rakshita Sodekar** under the guidance of **"Dr. Abhay R. Kasetwar"** to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur as a part of final year project stage-I for the partial fulfillment of the requirement for the award of bachelor degree in Electronics and Telecommunication Engineering for the academic session 2023-24.

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Abstract

Providing secondary school students with early and ongoing exposure to career-related experiences and information is crucial for their future success. While career counsellors play a vital role in this process, not all schools have the privilege of having dedicated professionals. It is essential for schools to recognize the value of adequate career guidance and allocate resources and support to ensure that every student has access to the necessary guidance to make informed decisions and connect their academics with their future aspirations. By investing in career guidance, we can empower the next generation to thrive in their chosen careers and contribute meaningfully to society.

Effective career guidance is pivotal in helping individuals navigate the complex world of careers and make informed decisions about their future. By considering the individualized needs of students, adopting a holistic assessment approach, and providing access to comprehensive information, we can enhance the overall effectiveness of career guidance programs. The mobile application solution developed through the Agile methodology serves as an innovative tool to introduce students to different career paths and assist them in their career planning journey. With continuous improvements and enhancements, we can provide students with the necessary guidance they need to thrive in the ever-evolving job market.

Keywords: Career, Guidance, Interest, Goal, Academics, Personality

Mapping of project title with PO's:

Project Title	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
EduPath: Personalized Educational and Career Guidance														

3- high, 2- moderate, 1-slight

PO1	Engineering Knowledge	PO7	Environment & Sustainability
PO2	Problem Analysis	PO8	Ethics
PO3	Design & Development	PO9	Individual & Team Work
PO4	Investigations	PO10	Communication Skills
PO5	Modern Tools	PO11	Project Management & Finance
PO6	Engineering & Society	PO12	Life Long Learning

Introduction:

Students often seemed to be confused regarding career choices because they have no one to guide them. Sometimes, they are unaware of various career opportunities available for them, hence they end up choosing the stream in which they are least interested Career Guidance system helps them to choose their career which is most suitable for them by providing them with proper career details. Students can even consult the counsellors if they are still confused about career choices. This system not only helps the students but also the counsellors benefit from this, as they get clients through this system. This system ultimately assists the students in making appropriate, satisfying, and interesting educational occupational choices regarding the selection of a career. Hence, it has huge future scope amongst Students, Counsellors, etc.

EduPath: Personalized Educational and Career Guidance is a process where we gain knowledge about the world of work and know and understand yourself to make a career for future life. This EduPath proves to be a decisive point for the career choosing phase. There are immense tools and data made available for students who keep interest in variety of Engineering fields therefore application helps students to make a choice over wide variety without research or any resource, the software takes care of all that.

The EduPath initiates its job by choosing a career for the students. The guidance system embedded in our project is based on overall factors like personality-based questions which predict a student's likings, knowledge about subjects, intelligence and the most important skills and Interest about Engineering fields. It is not only based on their Academic scores but also based on personality, thus giving the best overall choice and recommendation to the student. There are a variety of tests Conducted through this application and Machine Learning Algorithm Model predict the future based on test and suggest about Competitive Exams and Colleges for taking Admission in Engineering. Using Machine Learning Algorithm this system can predict the correct data regarding Career option and that will help the student for choosing right path in the Engineering field.

Motivation/Problem statement:

Choosing an EduPath is crucial for every student as it determines their future earnings and quality of life. Many students are unaware of their interests and need guidance to explore their options. It is important to consider personal aspirations rather than follow family or peer pressure. Making the wrong career choice can lead to failure, unemployment, and depression. Therefore, seeking career counseling can help students make informed decisions and avoid failure. EduPath aims to solve this by providing personalized career guidance. Overcoming these hurdles is crucial for ensuring accurate recommendations and empowering students to make satisfying educational and career choices.

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Literature Survey:

In recent years, the challenge of helping students navigate the complex landscape of career choices has gained attention, leading to the development of various career guidance systems. These systems aim to provide personalized insights, helping students make informed decisions about their educational and occupational paths. Recent studies emphasize the importance of real-world experiences in guiding students toward suitable careers. Systems like Career Navigate involve industry professionals, providing practical insights and networking opportunities. Research underscores the impact of socio-economic factors on career choices, advocating for systems that consider these elements for more accurate guidance. Ongoing studies explore virtual reality's potential in career counseling, simulating workplace environments to aid students in decision-making.

One prevalent issue is the confusion students face when selecting careers, often due to a lack of guidance. Studies highlight the importance of personalized career guidance systems in addressing this problem. These systems not only present career options but also consider individual preferences, ensuring a better match between the student's interests and chosen field.

Another contributing factor is the limited awareness students have about diverse career opportunities. Research emphasizes the need for comprehensive databases and tools to expose students to a wide array of career choices. EduPath aims to tackle this by providing extensive information on various Engineering fields, helping students explore options without the need for exhaustive research.

The role of career counselors is pivotal in the decision-making process. Existing literature acknowledges the positive impact of counselor consultations. EduPath aligns with this notion by offering students the option to consult counselors through the platform, creating a symbiotic relationship where both students and counselors benefit.

Integrating personality assessments and machine learning algorithms in career guidance is a novel approach. Recent studies highlight the effectiveness of such systems in predicting career suitability based on individual traits. EduPath leverages these advancements, enhancing its guidance system to consider factors beyond academic scores, thus providing a holistic recommendation to students.

Predictive modeling through machine learning is gaining traction in career guidance. Research demonstrates the ability of machine learning algorithms to analyze various factors and forecast suitable career paths. EduPath employs machine learning algorithms to predict career options based on tests, aiding students in choosing the right path in the engineering field.

Methodology:

The aim of our project is that should be able to predict the future for selecting the right field in engineering based on their skills, interest and personality assessment by using Machine Learning. Our application is a simple Deep Learning Sequential Neural Network Algorithm base software. Our EduPath system provides personalized guidance. Through a user-friendly interface, students gain insights into diverse Engineering fields, eliminating the need for extensive research. Our guidance system, backed by personality-based assessments and machine learning, offers holistic recommendations based on interests and skills, not just academic scores. Students can consult counselors for further clarity, creating a supportive ecosystem. EduPath predictive modeling suggests suitable career options, competitive exams, and recommended colleges, ensuring a well-informed choice, promising a satisfying, and fulfilling educational journey.

Modules:

Module 1: Dataset Gathering and Pre-Processing:

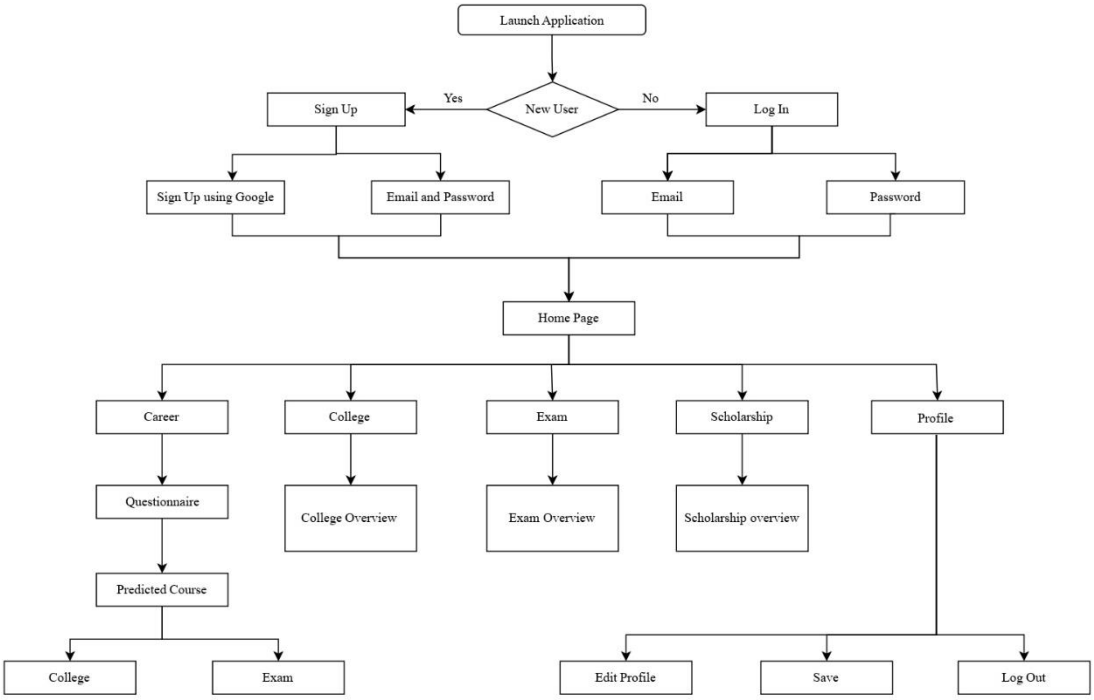
We have generated our own dataset for the training model. The dataset consists of more than 100 personality assessments, skills and interest-based questions.

Module 2: Training the Model:

In this Module we trained the model by providing the dataset and by using TensorFlow model.

Model 3: Predicting:

Here we implemented the trained model to predict the future in the right career in Engineering field. Also provide a information about Competitive Exam and provide short information about the Engineering colleges.

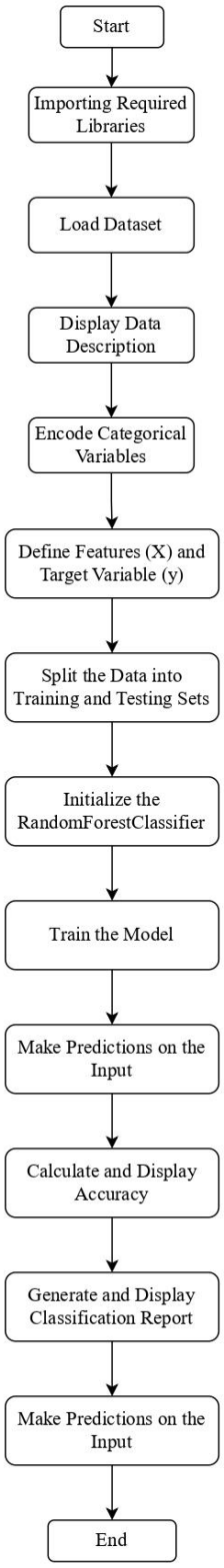


System Architecture

The primary focus of your project is to provide a good way for predicting a right career path in the Engineering field between the user and application. We have accomplished by training a model for predicting right field in engineering, here user can enter in application in career option and solve personality assessment test and then Machine Learning model predicting a right career path. The system architecture above describes the complete working of the project from training the model to the process of predicting the result and displaying it.

FLOWCHART OF THE PROPOSED SYSTEM

Below is the flowchart of our system which shows how the system is going to work. The algorithm of the flowchart is further explained below.



Flowchart of the System

Working flow of the application

1. User/Student Registration
2. Home page interface with options like career, scholarship, college, exam
3. In Career Option, take a personality assessment test which is based on skills, interest and then predictor model predict right career option based on test. After that, applications suggest Competitive Exams and Colleges based on their career path.
4. In Scholarship option, shows various opportunities regarding scholarship in engineering field.
5. In the Competitive Exam option, there are various exams which is based on the Engineering.
6. In Profile Page, show personal information about user/student name, email id, contact number, city, state, language, age, etc.

Plan of Project work:

The complete schedule plan for proposed project work is as mentioned below.

Sr. No.	Semester	Activity	Duration
1	VII	Literature Survey	20 Days
2	VII	Analysis and Detailed Study	1 Month
3	VII	Setup development environment and start development	1 Month
4	VII	Iterative development	1 Month
5	VII	Implementation	1 Month
6	VII	Thesis Writing	25 Days

References:

[1] Rucha Rangnekar, Khyati Suratwala, Sanjana Krishna, Dr. Sudhir Dhage, "Career Prediction Model Using Data Mining and Linear Classification", IEEE Fourth International Conference on Computing Communication Control and Automation (ICCUBEA), 2018

[2] Bysshe, S., Hughes, D. & Bowes, L. (2002). The Economic Benefits of Career Guidance: A Review of Current Evidence. Centre for Guidance Studies: University of Derby

[3] M.Fatih Akay, Ebru Cetin, Imdat Yarim, Ozge Bozkurt, M.Mikail Ozciloglu, "Using Machine Learning Techniques to Earlier Predict Student's Performance", IEEE 2018

[4] Guide on Life Planning Education and Career Guidance for Secondary Schools (1st Edit.) [C.G.S.S.D.D., Education Bureau -May 2014]

[5] Shah, H., Rather, M.A., Rafaqi, M.Z.H. & Singh, S.P. (2016). Guidance and Counselling. Srinagar: University of Kashmir.