AI-powered recruiter voice agent

INTERNSHIP PROJECT REPORT

Submitted in partial fulfillment of the requirements for the award of the

degree Of

BACHELOR of TECHNOLOGY

DEPARTMENT OF ARTIFICIAL INTELLIGENCE & DATA SCIENCES

BY

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Guided by

Dr. Kiran Malik.
Associate Professor
Dr. Himanshu Mittal Associate Professor,
Co-ordinator

INDIRA GANDHI DELHI TECHNICAL UNIVERSITY FOR WOMEN
NEW DELHI – 110006
- 27 July 2025 -

Indira Gandhi Delhi Technical University for Women

CERTIFICATE

I, Shikha Tiwari, certify that the Internship Project Report entitled "**AI-powered recruiter voice agent**" is done by me and my teammate and it is authentic work carried out by us at **Indira Gandhi Delhi Technical University for Women**. For this project, no work has been submitted before for any degree or diploma of the award, to the best of my knowledge and belief.

Signature of the student

Date: 27th July 2025

Certified that the project report entitled **AI-powered recruiter voice agent** done by the above student is completed under my guidance.

Signature of Mentor
Date:
Mentor Name: Dr. Kiran Malik
Designation: Associate Professor
Indira Gandhi Delhi Technical University for Women

Indira Gandhi Delhi Technical University for Women

UNDERTAKING REGARDING ANTI-PLAGIARISM

I, **Shikha Tiwari**, hereby, declare that the material/ content presented in the report are free from plagiarism and is properly cited and written in my own words. In case, plagiarism is detected at any stage, I shall be solely responsible for it. A copy of the Plagiarism Report is also enclosed.

Signature of the Student

Shikha Tiwari

Enrollment no. : 18401172024

ACKNOWLEDGEMENT

I would like to acknowledge my mentor **Dr. Kiran Malik** for his very helpful comments, support and encouragement.

Finally, I am grateful to **Indira Gandhi Delhi Technical University for Women** for providing a healthy, supportive and understanding environment. They allowed me the freedom to explore innovative models to simplify a complex business problem. This made my project work possible without any hindrance.

Signature of the Student

Shikha Tiwari

Enrollment no. : 18401172024

Indira Gandhi Delhi Technical University for Women

DECLARATION

I, **Shikha Tiwari**, solemnly declare that the internship project report, **AI-powered recruiter voice agent,** is based on my own and teammate work carried out under the supervision of **Dr. Kiran Malik**. I assert the statements made and conclusions drawn are an outcome of my work and teammate work. I further certify that:

I. The work contained in the report is original and has been done by me under the supervision of my supervisor.
II. The work has not been submitted to any other Institution for any other degree/diploma/certificate in this university or any other University of India or abroad.
III. We have followed the guidelines provided by the university in writing the report.
IV. Whenever we have used materials (text, data, theoretical analysis/equations, codes/program, figures, tables, pictures, text etc.) from other sources, we have given due credit to them in the report and have also given their details in the references.

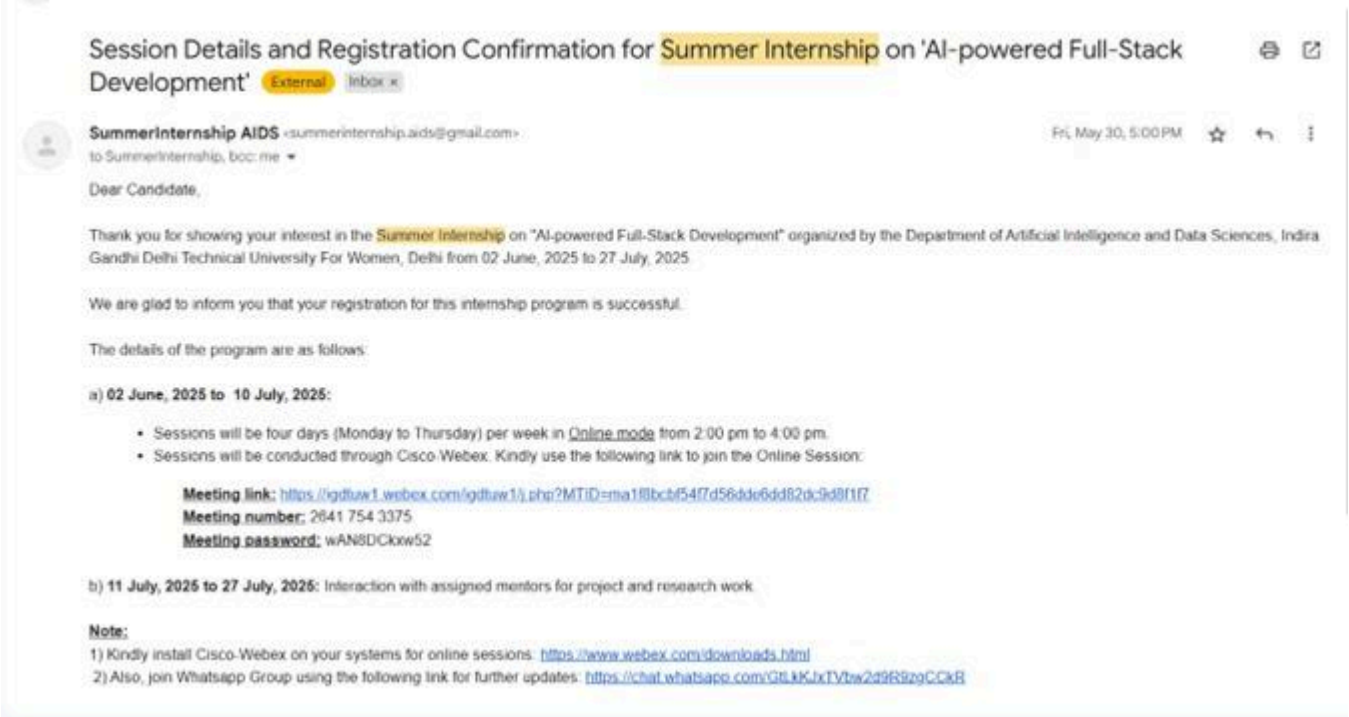
Signature of the Student

Shikha Tiwari

Enrollment no. : 18401172024

Indira Gandhi Delhi Technical University for Women

Internship Offer Letter



Session Details and Registration Confirmation for Summer Internship on 'AI-powered Full-Stack Development' External Inbox ×

SummerInternship AIDS <summerinternship.aids@gmail.com> Fri, May 30, 5:00 PM

to SummerInternship, bcc: me

Dear Candidate,

Thank you for showing your interest in the Summer Internship on "AI-powered Full-Stack Development" organized by the Department of Artificial Intelligence and Data Sciences, Indira Gandhi Delhi Technical University For Women, Delhi from 02 June, 2025 to 27 July, 2025.

We are glad to inform you that your registration for this internship program is successful.

The details of the program are as follows:

a) **02 June, 2025 to 10 July, 2025:**

- Sessions will be four days (Monday to Thursday) per week in Online mode from 2:00 pm to 4:00 pm.
- Sessions will be conducted through Cisco Webex. Kindly use the following link to join the Online Session:

Meeting link: https://igdtuw1.webex.com/igdtuw1/j.php?MTID=ma1f8bcbf54f7d56dde6dd82dc9d8f1f7
Meeting number: 2641 754 3375
Meeting password: wAN8DCkxw52

b) **11 July, 2025 to 27 July, 2025:** Interaction with assigned mentors for project and research work.

Note:
1) Kindly install Cisco-Webex on your systems for online sessions: https://www.webex.com/downloads.html
2) Also, join Whatsapp Group using the following link for further updates: https://chat.whatsapp.com/GBJkKJxTVbw2d9R9zgCCkR

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Internship Certificate

Indira Gandhi Delhi Technical University For Women

Department of Artificial Intelligence and Data Sciences

CERTIFICATE

OF COMPLETION

THIS CERTIFICATE IS AWARDED TO

Shikha Tiwari

For successfully completing the Summer Internship on **"AI-powered Full-Stack Development"** from **02 June 2025 – 27 July 2025**, organized by the Department of Artificial Intelligence and Data Sciences (AI&DS), Indira Gandhi Delhi Technical University for Women (IGDTUW), Delhi.

Prof. Poonam Bansal
HoD, Dept. of AI&DS,
IGDTUW

Dr. Himanshu Mittal
Program Co-ordinator
Associate Professor, IGDTUW

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Job Profile

As a student intern in the **AI-Powered Full-Stack Web Development** program, my role was to understand and implement modern full-stack development concepts and integrate **Artificial Intelligence (AI)** capabilities into web applications.The main responsibility included designing, building, and deploying an **AI-based recruiter voice agent web application** that automates interview generation, conduction, and feedback using voice and AI APIs.

Key Responsibilities

- Learning and applying frontend and backend development using **Next.js, React, Node.js, and Supabase**.
- Integrating **Vapi.ai (Voice AI)** and **OpenAI APIs** for dynamic voice-based interviews.
- Implementing database management and authentication using **Supabase**.
- Hosting and deploying the project using **Vercel (cloud deployment)**.
- Preparing documentation and final project report for evaluation.

About Company

The internship was organized by the **Department of Artificial Intelligence & Data Science**, IGDTUW, Delhi.The department is known for its focus on **education, research, and innovation**

in AI, machine learning, deep learning, and data sciences.The internship provided a industry-aligned learning environment where participants

could build **end-to-end AI-integrated web solutions**, applying theoretical knowledge to practical projects.

TimeLine

WEEK	DURATION	Focus Area / Work Done
WEEK 1	02 – 08 June	**Introduction to Full-Stack Development Fundamentals** — Understanding frontend–backend architecture, client–server model, HTTP requests, APIs, and overview of MERN + AI stack. Installed necessary tools (Node.js, VS Code, Git) and set up GitHub repository.
WEEK 2	09 – 15 June	**React JS Setup and Fundamentals** — Created first React app; learned JSX, components, props, state, and hooks. Implemented simple UI elements and reusable components for practice.
WEEK 3	16 – 22 June	**Advanced React JS + TypeScript** — Worked with routing, context API, and TypeScript type safety. Built responsive UI layouts for interview creation pages.
WEEK 4	23 – 29 June	**Backend Development with Node.js and Express.js** — Created RESTful APIs, learned middleware and routing. Connected backend routes to frontend forms.
WEEK 5	30 June – 06 July	**Database Integration with MongoDB / Supabase** — Designed schema for storing interview details and user data. Implemented Google authentication using Supabase. Introduced MVC architecture for cleaner code.
WEEK 6	07 – 13 July	**AI Integration and API Handling** — Studied basics of AI integration using Hugging Face and OpenAI APIs. Implemented question generation module for the recruiter project. Connected AI output with frontend components.
WEEK 7	14 – 20 July	**AI Integration and API Handling** — Studied basics of AI integration using Hugging Face and OpenAI APIs. Implemented question generation module for the recruiter project. Connected AI output with frontend

		components.
WEEK 8	21 – 27 July	**Project Work (AI Recruiter Voice Agent) —** Integrated all learned concepts: created full-stack AI-based interview platform with voice using Vapi.ai. Generated AI interview questions, conducted live voice interviews, stored responses, and displayed AI-generated feedback. Final testing, documentation, and report preparation.

Mini-Tasks

- Environment setup for **Next.js** and **React**.
- Implemented **Supabase authentication** using Google login.
- Created a **form interface** for job and interview detail entry.
- Integrated **OpenAI API** to generate job-based interview questions.
- Linked **Vapi.ai** for real-time AI voice conversations.
- Designed dashboard and feedback display components.
- Deployed the entire project on **Vercel**.

Introduction

The internship aimed to bridge theoretical AI concepts with real-world web development applications.Through this program, I developed an AI Recruiter Voice Agent web application — a smart system that allows users to simulate real-time job interviews through voice interaction. The AI interviewer dynamically generates questions based on job details, conducts the interview through speech, and provides a personalized feedback report.

This project represents the convergence of AI, Voice Processing, and Full-Stack Web Technologies, demonstrating the practical integration of Vapi.ai, OpenAI, Supabase, and Next.js.

System Requirement Analysis

Software Requirements

- **Frontend:** Next.js 14, React.js, TypeScript
- **Backend:** Node.js + Next.js API Routes
- **Database & Auth:** Supabase (PostgreSQL-based)
- **AI & Voice APIs:** OpenAI API, Vapi.ai API
- **Version Control:** Git & GitHub
- **Deployment:** Vercel
- **Code Editor:** Visual Studio Code
- **Browser:** Google Chrome / Edge

Hardware Requirements

- **Processor:** Intel i5 or above
- **RAM:** 8 GB (minimum)
- **Storage:** 20 GB free disk space
- **Operating System:** Windows 10 / 11 or Ubuntu 22.04

. **Microphone** and **Speakers** (for voice interview testing)

System Analysis

1 Feasibility Study

The system was analyzed for **technical, operational, and economic feasibility**:

- **Technical Feasibility:** Achieved using open-source technologies such as Supabase and Vapi.ai; no proprietary software required.
- **Operational Feasibility:** Designed for users preparing for interviews; intuitive UI ensures ease of use.
- **Legal Feasibility:** Uses compliant APIs and secure authentication; adheres to data-privacy standards.

2 Economic Feasibility

The project is cost-effective since it relies on **freemium AI and hosting services** (Supabase free tier, OpenAI trial credits, Vercel free deployment). No additional hardware or license cost is needed, making it viable for educational and personal use.

3 Implementation Feasibility

Development and deployment were successfully achieved within the 8-week duration. Integration of APIs and testing demonstrated that the system could be implemented in a scalable and real-time environment.

Work Description

Project Title: ***AI Recruiter Voice Agent Web Application***

Description:

A web-based platform that allows users to create and practice interviews for desired job roles.

Users input the **job position, company name, required skills, and duration**. The AI then generates **interview questions**, conducts a **voice-based interview**, and provides **detailed feedback** afterward.

Workflow:

1. User logs in with Google (Supabase Auth).
2. Enters job/interview details via form.
3. AI (OpenAI API) generates role-specific questions.
4. Interview link is generated dynamically.
5. Vapi.ai conducts real-time voice interview.
6. AI analyzes answers and creates feedback report.

Work Outcome

- Gained **practical experience** in full-stack development with real-time AI integration.
- Built a **functional AI interviewer application** with complete user flow.
- Improved understanding of **frontend–backend–database architecture**.
- Learned **deployment and version control** using GitHub and Vercel.
- Enhanced **problem-solving, teamwork, and project documentation** skills.

Conclusion

The 8-week internship provided a complete exposure to **AI-driven full-stack Development**. Building the **AI Recruiter Voice Agent** enhanced my understanding of both the **technical implementation** and **creative problem-solving aspects** of web development.

This project can be further extended by integrating more advanced **speech-emotion recognition** and **personalized performance analytics** for real-world recruitment platforms.

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Plagiarism

I, **Shikha Tiwari**, hereby declare that the project titled *"AI Recruiter Voice Agent"*

submitted as part of the **AI-Powered Full-Stack Web Development Internship** is

my original work carried out under the guidance of **Mentor Professor Kiran Malik and Dr. Himanshu Mittal**, Associate Professor, AI & DS Department, IGDTUW.

Any external material has been duly acknowledged in the references section.

Research Paper

Title: AI-Powered Voice-Based Interview System using Next.js and Generative AI

Authors:

Roshni Minj, B.Tech (Computer Science and Engineering - Artificial Intelligence), Indira Gandhi Delhi Technical University for Women (IGDTUW), Delhi

Shalini Yadav, B.Tech (Computer Science and Engineering - Artificial Intelligence), Indira Gandhi Delhi Technical University for Women (IGDTUW), Delhi

Shikha Tiwari, B.Tech (Computer Science and Engineering - Artificial Intelligence), Indira Gandhi Delhi Technical University for Women (IGDTUW), Delhi

Under the guidance of
Dr. Kiran Malik, Associate Professor,
Department of Artificial Intelligence and Data Science, **IGDTUW**

Status: Under Drafting Phase

Description:

This research paper presents the design and development of an **AI-powered recruiter voice agent** that automates the interview process using **Next.js, Supabase, OpenAI, and Vapi.ai**.
The system dynamically generates interview questions based on user-defined job roles and conducts the interview through a **real-time AI voice interaction**. It further analyzes candidate responses to provide **personalized feedback** on strengths, weaknesses, and performance improvement areas.
The paper emphasizes the integration of **Generative AI with full-stack web frameworks** to create intelligent HR automation tools. It also discusses challenges in natural voice processing, feedback generation, and ethical AI usage in recruitment technologies.

The proposed system demonstrates how AI can enhance the **efficiency, accessibility, and fairness of interview preparation and evaluation processes** for both candidates and recruiters.

References

- https://vapi.ai – Voice AI API Documentation
- https://supabase.com – Supabase Developer Docs
- https://nextjs.org – Next.js Official Documentation
- https://react.dev – React JS Documentation
- https://openai.com – OpenAI API Reference
- https://vercel.com – Deployment Platform Docs