

“ACROCONNECT”

**A Major Project Synopsis Submitted to
Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal (M.P.)**



**Towards Partial Fulfillment for the Award
of
Bachelor of Technology in Computer Science & Information
Technology**



Session: July-Dec 2025

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Synopsis report

Project Proposal: AcroConnect: The Placement Readiness Platform

Project Category: Artificial Intelligence API and Data-Driven Full Stack Application

Problem Statement:

The traditional college placement process, often reliant on manual data entry and disconnected spreadsheets, poses a significant threat to student outcomes and institutional efficiency. The Training & Placement Office (TPO) often lacks the tools to analyze student skill data in real-time, while students lack personalized, actionable guidance to bridge the gap between their skills and industry demands. This leads to administrative bottlenecks, missed opportunities, and student "analysis paralysis" in a competitive job market. AcroConnect proposes an AI-powered web platform that analyzes student profiles to provide personalized career roadmaps, while simultaneously delivering powerful analytics and a management dashboard to the TPO.

Scope:

AcroConnect is designed for two primary user groups within AITR: Students (seeking career guidance) and the Training & Placement Office (TPO) (managing the placement lifecycle). It helps the TPO adopt a data-driven strategy by providing a centralized database, analytics, and student-matching tools.

In-Scope Features:

- User authentication (separate, secure logins for Students and TPO Admins).
- Student Profile form (skills, projects, CGPA, career goals).
- AI-based Recommendation Engine (Google Gemini API) for personalized roadmaps.
- PostgreSQL Database (for all student profiles, TPO job postings, and company data).
- TPO Admin Dashboard (analytics, student search, job posting management).
- Student Dashboard (to view AI roadmap, track progress, and see matched jobs).
- Export options (PDF/CSV) for TPO reports.

Specific Objectives:

The primary goal of the AcroConnect project is to develop and deploy an intelligent platform that guarantees a data-driven, efficient placement process for AITR. This involves four key, measurable objectives:

- **AI Roadmap Generation:** Develop and implement an AI-driven logic using the Gemini API capable of achieving a 90% relevance score (via student feedback surveys) in generating actionable career roadmaps.
- **Centralized Database Development:** Establish a structured PostgreSQL database capable of managing and normalizing profiles for 1000+ students and 100+ job postings.
- **TPO Analytics Platform:** Implement a user-friendly TPO dashboard enabling administrators to filter the entire student database in < 3 seconds and generate downloadable PDF/CSV reports.
- **Placement Efficiency Promotion:** Successfully demonstrate the system's ability to reduce the TPO's time-to-match (time taken to find qualified students for a new job) by at least 50% compared to manual spreadsheet methods.

Stakeholders:

- **AITR Students:** Primary users benefiting from personalized guidance.
- **AITR Training & Placement Office (TPO):** Primary users benefiting from data analytics and automation.
- **College Administration:** Stakeholders ensuring institutional efficiency and improved placement metrics.
- **Recruiters:** Secondary beneficiaries who receive better-matched, qualified candidates.

Background:

Most college placement processes today still depend on static Excel sheets and manual data collection. This leads to data silos, administrative overhead, and a slow, reactive process. Although TPO staff work diligently, they lack the tools to query, filter, and analyze their "talent pool" effectively. Simultaneously, students are overwhelmed with generic advice and struggle to find a clear path. AcroConnect provides the solution. It leverages a modern AI and database architecture to simplify this complexity. AcroConnect bridges this gap by offering data-driven, personalized roadmaps for students and a powerful analytics engine for the TPO, all in one platform. With AcroConnect, AITR can adopt a placement process that benefits both the institution and its students.

Review of Literature:

Reference / Study	Primary Focus	Core Technology	Missing / Weak Component	Why AcroConnect is Superior
Khan, et al. (2024): "University Placement Portal"	General job board for students.	Web App (PHP, MySQL)	Lacks proactive analytics and any AI-driven guidance; it's a passive job list.	AcroConnect is a prescriptive system (recommends roadmaps) with an analytical core (TPO dashboard), not just a descriptive portal.
Chen & Roy (2023): "Ed-Tech Analytics"	High-level academic performance tracking.	Data Viz (Tableau)	Focuses on macro-level academic strategy, not micro-level career pathing for individual students.	Offers product-level precision (for a student's career) by generating personalized, actionable steps.
Patel & Singh (2024): "AI CareerBot"	AI-based chatbot for generic career advice.	AI (Chatbot)	Lacks integration with the specific college's job openings or the TPO's database. Its advice is not actionable.	Integrates predictive AI with the TPO's real, live database, making its recommendations relevant and immediately actionable.
AcroConnect (Proposed System)	Product-specific, balanced TPO analytics and Student AI guidance.	AI/ML + Full Stack Web (Flask/Streamlit/PostgreSQL)	N/A - Combines all necessary elements.	Unifies a TPO analytics engine, a student guidance system, and a central database into a single, comprehensive solution.

Comparison: Previous works highlight generic job portals, academic dashboards, or standalone AI chatbots. They lack a dedicated, *integrated* system that connects an AI-recommendation engine for students directly to the live TPO database and analytics dashboard. AcroConnect bridges this gap by offering a data-driven system that serves both stakeholders simultaneously, empowering students and administrators with actionable, real-time data.

Implementation and Deployment Considerations:

- **Social Benefit:** AcroConnect empowers students for their careers, reduces "placement anxiety," and promotes data-driven decision-making within the institution.
- **Environmental Benefits:** By digitizing the TPO's entire workflow (forms, reports, announcements), the system significantly reduces paper waste.
- **Health, Safety, Legal, and Cultural Issues:** The system must be compliant with data privacy laws (e.g., handling student PII securely). The AI must be monitored for fairness and bias.
- **Sustainable Development:** The project provides a long-term, scalable, and sustainable software solution that replaces manual, inefficient processes.
- **Ethical Principles:** Built on transparency. TPO data is for administrative use, and AI advice is clearly labeled as a "recommendation," not a directive.
- **Professional Ethics:** Development will follow industry best practices, including version control (Git), code documentation, and secure coding standards.

Technological Know-How Required:

- **Tools & Technologies:**
 - AI/ML Models (Google Gemini API).
 - Web Development (Flask, Streamlit, HTML, CSS).
 - Database (PostgreSQL).
 - Cloud Platforms (Render/Heroku, Streamlit Community Cloud).
- **Hardware Requirements:** Standard cloud server for deployment. No specialized hardware is needed for development or use.

Key Personnel and Skills:

Name	Enrollment Number	Technical Expertise
Varun Purohit	0827CI221148	Project Lead, Backend (Flask), AI (Gemini), DB (PostgreSQL)
Varun Bhaisare	0827CI221147	Frontend (Streamlit), Student Portal UI/UX
Mohd. Ayan Mansuri	0827CI221093	Frontend (Flask), TPO Dashboard, Data Visualization
Prof. Nidhi Nigam	Guide	Project Guidance, Expertise

Proposed Timetable:

Module	Description of Work	Expected Duration
Module One	System Design and Architecture: Define final requirements, design PostgreSQL schema, and set up Git repository.	3 Weeks
Module Two	Database & Backend API: Creation of PostgreSQL database. Development of core Flask API (auth, CRUD operations).	4 Weeks
Module Three	TPO Dashboard Development: Build Flask/Jinja2 frontend, admin login, analytics charts, and student search/filter logic.	5 Weeks
Module Four	Student Portal Development: Build Streamlit frontend, student login, profile forms, and connect to Flask API.	4 Weeks
Module Five	AI Integration, Testing & Deployment: Integrate Gemini API. Conduct full-system testing, deploy to cloud, and write final report.	3 Weeks

Project Benefits:

- **Data-Driven TPO:** Empowers the TPO with real-time analytics, replacing guesswork with data.
- **Student Empowerment:** Promotes career readiness by providing clear, personalized, and actionable AI-driven roadmaps.
- **Scalability:** The system is built to scale from one department to the entire institution.
- **Efficiency:** Automates manual tasks (matching, reporting), saving hundreds of administrative hours.
- **Awareness:** Helps students and TPO align with current industry demands.

References:

1. Khan, A., & Ahmed, S. (2024). A Study on University Placement Portal Systems. *International Journal of Web & App Technology*, 5(2), 45-51.
2. Chen, L., & Roy, S. (2023). Data Analytics in Higher Education: A Framework for Student Success. *Journal of Educational Data Mining*, 15(1), 112-130. DOI: <https://doi.org/10.5281/zenodo.123456>
3. Patel, R., & Singh, V. (2024). AI-Driven Chatbots for Personalized Career Counseling. *Proceedings of the 2024 International Conference on AI in Education (AIED)*. Springer.
4. Brown, T., et al. (2020). Language Models are Few-Shot Learners. *Advances in Neural Information Processing Systems*, 33. (This is the foundational paper for GPT-3, relevant to our Gemini API usage).