

PROBLEM STATEMENTS WITH DETAILED EXPLANATION

1) GENERATIVE AI

The Challenge

Startup funding information is fragmented across reports, portals, and policies—mostly in English. Many Indian founders, especially those preferring Indic languages, struggle to access, understand, and use this data effectively, limiting informed funding decisions.

The Objective

Build a Multilingual RAG-based Startup Funding Intelligence System that retrieves, reasons over, and explains real startup funding data in Indic languages. The system should deliver accurate, grounded insights on investors, funding trends, and policies through natural language queries.

Data Ingestion (Structured & Unstructured): Collect and preprocess startup funding data from tables, reports, PDFs, and web sources. Normalize content to create a unified, query-ready knowledge base.

RAG-based Retrieval & Generation: Retrieve the most relevant information using vector search and embeddings. Generate explainable, source-grounded responses while minimizing hallucinations.

Indic Language Support: Enable users to ask questions and receive answers in Indic languages. Use multilingual embeddings or translation-aware pipelines for accurate understanding.

Actionable Funding Insights: Surface investor details, funding trends, and policy support relevant to user queries. Present insights that support real-world funding and strategy decisions.

API & Frontend Deployment: Expose core intelligence through APIs for easy integration. Provide a simple, accessible frontend designed for founders and ecosystem users.

2) AGENTIC AI

The Challenge

Across colleges and early-career workplaces, many students and young professionals struggle to make clear career decisions. They are unsure which job roles match their skills, what to learn next, when to apply, or why they face repeated rejections. Career growth today is scattered across platforms and requires constant manual effort, making the process confusing and stressful. The challenge is to build a true AI career companion that continuously guides users, reduces uncertainty, and turns effort into clear, trackable career progress.

The Objective

Build an Agentic AI Career Development Assistant that helps users move from their current skill level to job readiness. Unlike a traditional chatbot, the system should think, plan, act, and improve over time, functioning as a long-term career mentor. The agent should:

Understand the User's Career Profile: Collect and analyze resumes, skills, interests, academic background, and career goals. Maintain a persistent career memory that updates as the user grows.

Reason About Career Paths and Job Market Needs: Analyze job descriptions and skill demand trends to determine which roles are realistic for the user now and which require further preparation.

Plan Personalized Skill Roadmaps: Identify skill gaps and generate adaptive learning plans with recommended projects, learning resources, timelines, and milestones.

Act on Career Opportunities: Recommend relevant jobs, internships, and hackathons. Assist in resume tailoring, application preparation, and deadline tracking to reduce manual effort.

Learn and Adapt Continuously: Use feedback from applications, interviews, rejections, and completed milestones to refine career strategies and update plans automatically.

Go Beyond: Innovate with features such as AI-driven interview practice, application outcome analysis, weekly career progress summaries, or proactive alerts for high-fit opportunities.

3) AIoT

The Challenge

Rapid urbanization has increased pressure on healthcare systems, child safety mechanisms, and urban infrastructure. Hospitals struggle with continuous patient monitoring, cities face safety and energy inefficiencies, and children remain vulnerable in crowded or indoor environments. Existing IoT solutions are often fragmented, reactive, and cloud-dependent, raising concerns around latency, privacy, and scalability. The challenge is to design intelligent, edge-based AIoT systems that can sense, reason, and respond in real time while operating efficiently and securely in real-world environments.

The Objective

Build AIoT systems powered by Edge AI and TinyML that proactively monitor, predict, and assist across healthcare, child well-being, and urban infrastructure. These systems should operate close to the source of data, minimize cloud dependency, and deliver actionable insights in real time. The solutions should combine multi-modal sensing, on-device intelligence, and adaptive decision-making to improve safety, efficiency, and quality of life.

Urban Healthcare: Predictive & Assisted Care

Real-Time Health Monitoring

Design intelligent bedside and ambient monitoring systems using audio, motion, and physiological signals to continuously assess patient well-being without intrusive devices.

Treatment Compliance & Safety

Build AI-powered medication adherence and verification systems that detect missed doses, incorrect medications, or unsafe behavior to reduce medical errors.

Occupational Wellness & Fatigue Monitoring

Create fatigue-aware work and study environments that monitor stress, alertness, and behavioral patterns to prevent burnout, accidents, and performance decline.

Child Well-being: Safety, Location & Stress Detection

Continuous Indoor Child Localization

Develop multi-zone child tracking systems using mesh networking for accurate indoor positioning without GPS dependency.

Proactive Risk & Distress Detection

Design AI-driven systems that identify early signs of child abuse, neglect, or distress through behavioral and environmental cues.

Infant Monitoring with TinyML

Implement on-device TinyML models for baby cry and distress classification, ensuring privacy while enabling rapid caregiver response.

Urban Infrastructure: Optimization & Security

Smart Traffic & Emergency Response

Enable emergency vehicle-to-traffic signal pre-emption systems that dynamically manage signals to reduce response times and improve road safety.

Energy-Efficient Public Spaces

Build adaptive street lighting systems using occupancy sensing and anomaly detection to optimize energy usage while maintaining safety.

Crowd Intelligence & Public Safety

Design real-time crowd flow and emotion analysis systems for public spaces, events, and retail environments to prevent congestion and security risks.

Go Beyond: Intelligent Urban Ecosystems

- Federated learning for privacy-preserving intelligence
- Self-healing and adaptive IoT networks
- Predictive maintenance and anomaly forecasting
- Unified AI dashboards for real-time decision-making