

Project Proposal: Personal Savings Coach (AI Chatbot)

Built with react, Vertex AI, Genkit, and Firebase

1. Project Title

Personal Savings Coach — An AI Chatbot for Financial Awareness and Budget Tracking

2. Problem Statement

Across many African communities, especially among students and young adults, financial literacy and budgeting discipline remain significant challenges. Most people do not actively track their daily expenses or plan for savings, often due to complex tools, lack of awareness, or limited access to user-friendly financial applications.

There is a need for a simple, conversational, and mobile-friendly AI assistant that helps users record expenses, manage budgets, and receive smart saving tips — all in natural language.

3. Proposed Solution

The Personal Savings Coach is an AI-powered chatbot web application that helps users:

- Track daily spending by simply chatting with the bot.
- Analyze weekly or monthly expenses.
- Receive personalized saving and budgeting recommendations.

The system will be built using Next.js for both the frontend and backend (API routes), integrated with Google Vertex AI for natural language processing and Firebase Firestore for expense data storage.

4. Project Objectives

- Develop a Next.js web app with a clean chatbot interface.
- Integrate Vertex AI for conversational understanding and response generation.
- Use Firebase Firestore to store and summarize user expenses.
- Implement Genkit for chatbot flow management and intent detection.
- Provide data visualization of spending summaries.
- Encourage better financial management and saving habits through daily interaction.

5. Technologies to Be Used

- React 18 – ui library
- Typescript – type safety
- Vite – building tool and dev server
- Tailwindcss 3 – styling
- Radix ui – Accessible component primitives
- React router 6 – client-side routing
- React hook form – form management

- Vertex AI (Google Cloud) — Provide AI-driven conversation and financial insights.
- Genkit — Manage chatbot workflows, detect intent, and route messages appropriately.
- Firebase Firestore — Store user expense logs and summaries in real time.
- Firebase Authentication (optional) — Manage user accounts and secure personal data.
- Recharts / Chart.js — Visualize expenses and savings progress.
- Vercel / Google Cloud Run — Host the application and APIs.

6. Expected Outcomes

- A fully functional AI chatbot web application that tracks expenses and offers financial advice.
- Automatic budget summaries based on user data.
- Personalized saving tips generated by Vertex AI.
- User-friendly interface accessible on both desktop and mobile devices.
- Open-source GitHub repository with setup documentation and deployment guide.

7. Impact

- Financial Inclusion: Encourages financial literacy and saving culture among youth.
- Accessibility: Simple and interactive — easy for anyone to use, even without financial background.
- Cultural Relevance: Localized (e.g., uses Kenyan Shillings, local spending examples).
- Scalable: Can integrate with mobile money systems like M-Pesa or banks in the future.

8. Sustainability and Scalability

- Technical Feasibility: Lightweight web app with serverless deployment on Vercel or Google Cloud.
- Scalability: Firebase and Vertex AI easily scale to handle thousands of users.
- Community Involvement: Can be adapted for schools, universities, or SACCOs to teach financial literacy.
- Monetization Potential: Freemium model — basic chatbot for free, advanced insights for premium users.

9. Deliverables

1. Project Proposal — detailing objectives, tools, and expected results.
2. Pitch Deck (Slides) — presentation highlighting the problem, solution, and AI flow.
3. Working Prototype — hosted Next.js app demonstrating chatbot functionality.
4. Demo Video (≤ 3 minutes) — showing expense logging and AI-driven tips.
5. Open Source GitHub Repository — with code, documentation, and open license.

10. Team Members

Name: Peter Mburu

Role: Full-Stack Developer / Project Lead

Skills: Next.js, React, Firebase, Python, REST APIs

Institution: Chuka University

11. References

- Google Cloud — Vertex AI Documentation (<https://cloud.google.com/vertex-ai/docs>)
- Google Genkit — Genkit Overview (<https://cloud.google.com/genkit>)
- Firebase — Firestore Database Guide (<https://firebase.google.com/docs/firestore>)
- Next.js — Official Documentation (<https://nextjs.org/docs>)
- Financial Literacy Kenya (2024) — Youth Savings and Digital Finance in Kenya.