Trinity College
Technical Projects Showcase

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Purpose of This Document

This document was prepared as part of my Early Decision application to Trinity College.
My goal is to demonstrate my initiative, creativity, and technical ability through projects that reflect both my interest in computer science and my genuine enthusiasm for becoming part of the Trinity community.

Rather than only writing about "what I can contribute,"
I wanted to **show** it—by building tools that could actually help future Trinity students and applicants.

Each project included here was designed from scratch, and each one reflects how I hope to think, build, and contribute if admitted.

Completed Projects

• Trinity College AI FAQ Chatbot

An AI-powered Q&A tool trained on Trinity-related information to help applicants and students get instant answers.

• Trinity Student Companion App (Mobile Prototype)

A mobile app concept designed to help future Trinity students navigate academics, campus life, deadlines, and resources.

Trinity College AI FAQ Chatbot

Project Purpose

During the application process, I realized how many repetitive questions Trinity's admissions team receives—especially from international students like myself. Their job is already demanding, and answering the same basic questions repeatedly can take away valuable time that could be spent evaluating applicants more deeply or supporting students.

To help reduce this workload and improve accessibility for future applicants, I built an **AI-powered FAQ chatbot** trained specifically on Trinity-related topics such as financial aid, campus life, academics, housing, and student resources.

My goal was to create a simple tool that could answer the most common questions instantly, allowing admissions staff to focus on more meaningful conversations.

How It Was Built

- I collected actual Trinity-related questions across admissions pages, international student guides, and official college resources.
- I organized them into a structured JSON dataset that the model could understand.
- The chatbot uses the **Sentence-Transformers MiniLM model** to understand natural language and match the input to the closest question in the dataset.
- I built the interface using **Gradio** and deployed it through **HuggingFace Spaces**, making it accessible online.
- The entire project is open-source and publicly available on GitHub.

This was my first time combining natural language processing, dataset preparation, and cloud deployment into a single project.

Trinity Student Companion App (Mobile)

Project Purpose

After building the AI FAQ chatbot, I wanted to develop something that future Trinity students could actually use *on campus*. Trinity has a close, collaborative community, and I wanted to contribute to that culture early — even before arriving.

So I began designing a **mobile "Student Companion App"**, a lightweight tool meant to help incoming students access essential campus information quickly, stay organized, and feel more confident during their first weeks at Trinity.

My goal was to create a simple, modern, student-friendly interface inspired by Trinity's colors and identity.

How It Was Built

- The app was designed with a focus on **simplicity, clarity, and accessibility**, using Trinity's blue-and-gold color theme.
- Built using **Android Studio**, the app includes:
  - quick-access buttons for essential information (housing, dining, academic calendar)
  - campus contact shortcuts
  - a built-in FAQ page
  - a clean, minimal UI designed for first-time students
- I built it as a prototype to show initiative and to demonstrate how a mobile support tool could help new students transition into college life.

The current version is a **functional mockup**, but it establishes the foundation for a more complete student support system.

If Admitted — Future Expansion: Trinity Connected Campus System

If I am admitted to Trinity College, I plan to transform my prototype into a large-scale, fully functional **Trinity Connected Campus System** — a unified mobile platform designed to strengthen communication between students, faculty, and families.
 This is the long-term project I want to develop *with Trinity's permission and collaboration*.

1. Real-Time Interactive Campus Map

- A live, real-time campus map showing buildings, classrooms, offices, study spots, and student resources.
- Navigation support for new students, using visual directions and optional AR overlays to help first-years find their way during the first weeks of college.

2. Three-Role Login System

To improve communication and organization, I plan to implement a system with three different access levels:

(a) Faculty & Administration Portal

- Ability to post **campus-wide announcements**, updates, event information, and schedule changes.
- Tools to manage academic calendars, deadlines, meetings, and reminders.
- A streamlined way to reach students directly through the app.

(b) Student Portal

- Students can view **their own grades**, assignment deadlines, and academic updates.
- They can also see important campus notifications, upcoming events, and reminders.
- Permission-based communication tools for students to receive critical information instantly.

(c) Parent/Guardian Portal

- Parents can receive **important notifications** about their child's academic progress and major school events — similar to a phone alert.
- Access to grades, deadlines, and important dates (only with the student's and the college's permission).
- Helps build trust and reduces confusion for international families sending their children abroad.

3. Privacy & Permission First

Any parent or faculty access would be **strictly permission-based**, respecting Trinity's policies and the student's privacy.
 The system would only be developed in partnership with Trinity's IT department and used in compliance with college guidelines.

4. Goal & Impact

My goal is to create a system that:

- Reduces daily communication stress for faculty
- Helps students stay organized and supported
- Keeps families informed without overwhelming the college
- Strengthens the campus community through technology

If Trinity welcomes me, I want to build something meaningful — a tool that improves life on campus for hundreds of students.

Future Concept — AR Campus Experience Project

Why This Project Matters to Me

I have always been fascinated by augmented reality — the idea of blending the digital world with real physical spaces. I've never had the chance to fully build an AR system before, but it is a field I am genuinely curious about and eager to learn.

If I am admitted to Trinity College, one of my biggest personal learning goals is to dive deeper into AR development and build something meaningful for the campus community.

Project Idea: Trinity AR Campus Experience

My vision is to create an AR tool that helps students — especially first-years and international students — navigate and understand campus more easily.

Here's what I want to build:

- **AR Classroom & Building Navigation**
  Students could point their phone at a building, and the app would overlay directions, class locations, and office labels.
- **AR Campus Tour for Prospective Students**
  A self-guided, interactive tour that overlays history, facts, and interesting details about buildings and landmarks.
  This could also help international students who cannot visit campus in person.
- **AR Orientation Week Assistant**
  During orientation, first-years could use AR markers to find event locations, dining halls, and meeting points.

Personal Learning Motivation

This project represents a big challenge for me — and that's exactly why I want to do it.
 If admitted, I plan to:

- Learn AR development tools like ARCore / Unity
- Collaborate with professors from CS and Engineering
- Work closely with campus offices to integrate real data
- Develop the app step by step as my skills grow

For me, this would be both a **learning journey** and a way to contribute something creative to Trinity's community.

Long-Term Vision

Eventually, I want this AR experience to become part of:

- orientation week
- campus tours
- student life
- and academic exploration at Trinity

It's not a completed project yet — it's a **goal, a curiosity, and a future contribution** I hope to make if Trinity gives me the opportunity to join the community.

Final Statement

Creating these projects has been more than just a technical exercise for me — it has been a way to express my genuine enthusiasm for Trinity College, my curiosity for building useful tools, and my desire to contribute to a community I hope to join.

Even though I am applying from thousands of miles away, I wanted to show that I am already thinking like a Bantam: **solving problems, creating resources, and imagining ways to make campus life better.**

These projects are only early steps.
 If I am fortunate enough to join Trinity College through Early Decision, I want to continue expanding them — not as assignments, but as contributions to the place I would proudly call home.

I am excited about the possibility of learning, building, collaborating, and growing as a Bantam.
 And I hope that through this portfolio, I was able to show not just what I have built, but what I am ready to build in the future.

The Project's Link

GitHub Repository:
 https://github.com/ArdaMirArkin/Trinity-Project/tree/main