



2025/2026 SENIOR DESIGN PROJECT PROPOSAL



Ames After Dark

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2. EXECUTIVE SUMMARY

Ames After Dark is a mobile-first application designed to enhance the nightlife experience for Iowa State students and Ames residents by combining event discovery, bar specials, and personal safety tools in a single platform. The app will streamline how students and community members find local events, connect with friends, and stay safe while enjoying nightlife. With a modern mobile interface, real-time venue data, and integrated safety features, Ames After Dark provides both convenience and peace of mind. This project will be developed as a two-semester capstone, delivering a deployable mobile app with real-world impact and strong portfolio value.

3. PROBLEM STATEMENT

Students and Ames residents rely on fragmented and outdated methods to learn about bar specials, live events, and nightlife options through scattered social media posts, or static websites. This leads to inefficiency, missed opportunities, and safety concerns; especially when groups lose track of one another late at night. There is currently no centralized, reliable platform tailored to Ames nightlife that combines event discovery with features to support safe socializing.

4. PROPOSED SOLUTION / CONCEPT

Ames After Dark will be developed as a cross-platform mobile application that will integrate a curated database of local bars, specials, and events with mapping functionality to help users make real-time decisions on where to go. In addition, it will include built-in student safety tools, such as location sharing with friends, group “check-in” features, and quick-access emergency resources. The backend will leverage modern cloud technologies to provide a scalable and secure infrastructure. The result is a user-friendly, practical application that addresses a real need in Ames while offering the development team exposure to industry-standard tools, security practices, and full-stack mobile development.



5. KEY FEATURES & FUNCTIONALITY

MVP Must-Haves

Frontend / Mobile App

- Cross-platform app (React Native/Expo).
- Clean navigation (Home feed, Map, Safety, Profile).
- User accounts & authentication (Firebase/Supabase).

Backend / Data

- Centralized API + relational DB (PostgreSQL + Node.js/Nest.js).
- CRUD operations for bars, events, specials.
- Admin portal for bar/event management.

Events & Listings

- Core set of Ames bars in database.
- Specials & event feed (manual input or simple scrape).
- Search & filter options (“Open Now,” “Specials,” “Live Music”).

Maps Integration

- Google Maps or Mapbox with venue pins.
- Proximity-based recommendations.

Safety Basics

- One-tap “Check-In” button to notify contacts or share location.

Nice-to-Haves

Advanced Safety

- Friend location sharing with opt-in visibility.
- Group mode (track multiple friends).
- Panic button / emergency contact shortcut.

Social / Engagement

- Group decision tool (mini poll/vote for where to go).



- See where friends are checked in.
- Gamification (badges, loyalty points, bar coupons).

Automation & Intelligence

- OCR/vision-based menu parsing for specials.
- Auto-tagging and categorization of deals.
- Recommendation engine (“Suggested bars for you tonight”).

Infrastructure & Scalability

- Push notifications (events starting soon, safety reminders).
- Offline caching for bar/event data.
- Cloud CI/CD pipeline for smooth deployment.

Polish & Professionalism

- Accessibility (WCAG compliance).
- Analytics dashboard for bar owners.
- Admin panel with role-based permissions.



6. TECHNOLOGY STACK (OPTIONAL FOR CLASS CONTEXT)

Frontend (Mobile Application)

- **Framework: React Native**
- Chosen for cross-platform development (iOS & Android).
- Allows efficient code sharing across devices while maintaining a native app experience.
- **UI Toolkit: Tailwind CSS with NativeWind + shadcn/ui (React Native adaptation)**
- Ensures modern, clean, and responsive UI components.
- Grid-based layouts, animated transitions, and intuitive navigation.
- **Mapping: React Native Maps (Google Maps API)**
- Provides geolocation services and map overlays for bars and events.

Backend

- **API Layer: Node.js with Express**
- Manages requests between the app and the database.
- Provides secure REST API endpoints for bar listings, events, and user data.
- **Database: MongoDB Atlas (Cloud-Hosted)**
- Flexible schema for handling bar info, events, and user accounts.
- Scalable for future features such as reviews, check-ins, and friend location tracking.

Authentication

- **Firebase Authentication**
- Provides secure login using email, Google, or Apple ID.
- Easy to integrate with React Native.

Hosting & Deployment

- **Backend Hosting: Heroku or Render (initial deployment)** → potential migration to **AWS/GCP** as user base grows.
- **Mobile Deployment:** Published via **Apple App Store** and **Google Play Store**.

Version Control & Collaboration

- **GitHub** for source code management.
- **GitHub Projects** or **Jira** for agile task tracking.



Testing

- **Jest + React Native Testing Library** for frontend unit/integration tests.
- **Postman** for API endpoint testing.



7. SCOPE FOR THIS COURSE

The scope of this project, within the context of the senior design course, is to design and implement a **fully functional prototype** of the Ames After Dark mobile application. The prototype will demonstrate the core features of the system — including bar listings, event listings, user authentication, favorites, and an interactive map — while providing a realistic user experience.

The focus will be on achieving technical feasibility, demonstrating system integration, and validating the concept rather than deploying a production-ready application. This means:

- The backend will be implemented with a functioning API and database, but hosted on a development or free-tier cloud service.
- The mobile app will run on iOS and Android test environments (simulators and test devices), but not necessarily published to the App Store or Google Play.
- Data may be partially static or manually curated for demonstration purposes, rather than fully automated through third-party APIs or business partnerships.
- Security and scalability will be addressed at the prototype level, with production-hardening considered out of scope.

By the end of the course, the prototype will showcase the core functionality of the application and provide a proof-of-concept that could be expanded into a fully deployed product in the future.

8. OWNERSHIP & CONTRIBUTIONS

Ames After Dark is a project concept and prototype that I, Chase Anderson, developed independently prior to this course.

For the purposes of senior design, our team would collaborate to create a new implementation, contribute to the system design, and produce deliverables required for this class. These contributions will be recognized as part of our senior design project and credited to all team members for their work this semester.

The original concept, prototype, and any future rights to Ames After Dark remain with me as the project proposer. Team members' work during this course will be recognized academically but does not transfer ownership of the underlying idea or its continued development outside this class.

