MICHIGAN STATE UNIVERSITY

Project Plan Presentation

Time Cube

The Capstone Experience

Team Vectorform

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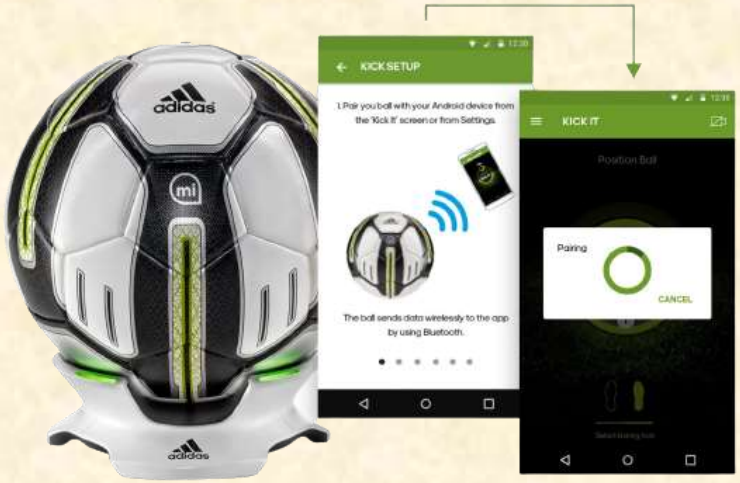
From Students…
…to Professionals

Project Sponsor Overview

- Invention Company
  - "We Invent the Future"
- Company Values:
  - Invent through Collaboration
  - Invent for Humans
  - Invent to Create Value
  - Invent the Impossible
  - Invent the Future

Vectorform



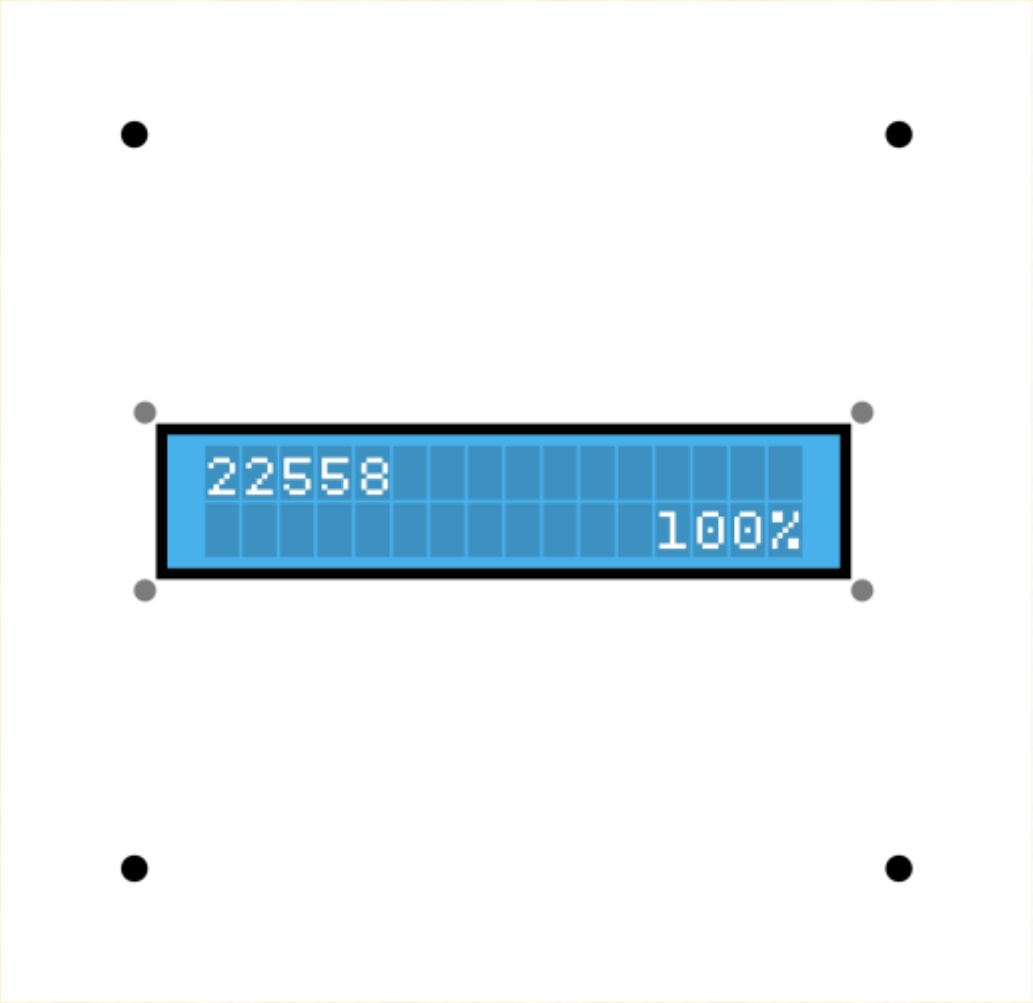
Project Functional Specifications

- Time Cube
  - Track time spent on billable projects
  - Using a desktop device monitoring system
  - To provide accurate, automatic time tracking
  - Electronically without intruding on employee privacy

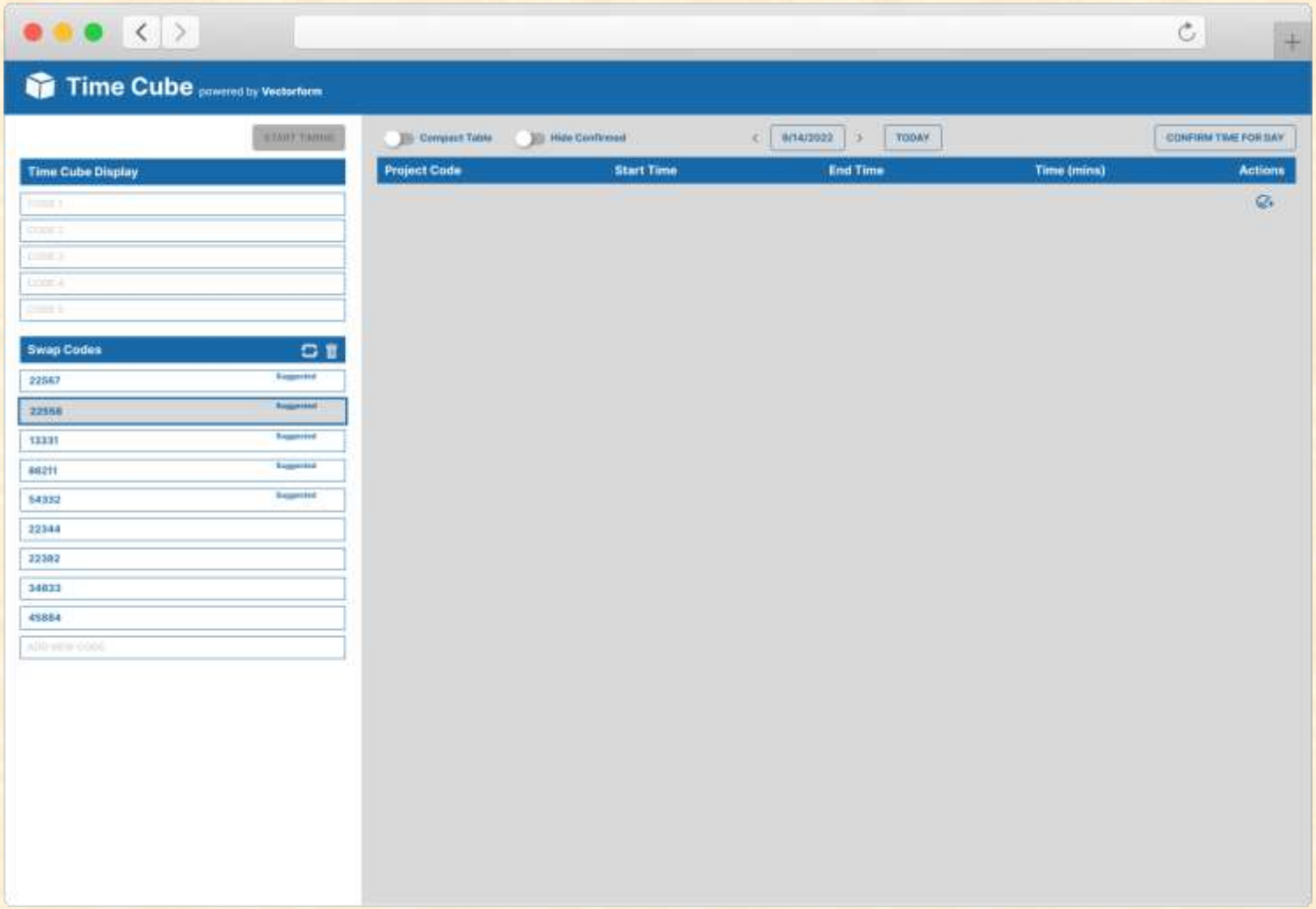
Project Design Specifications

- Time Cube displays Project Codes and battery life
- Web application where users can configure Time Cube display
- Sync suggested Project Codes
- Display generated time entries
- Ability to add, change, and remove time entries

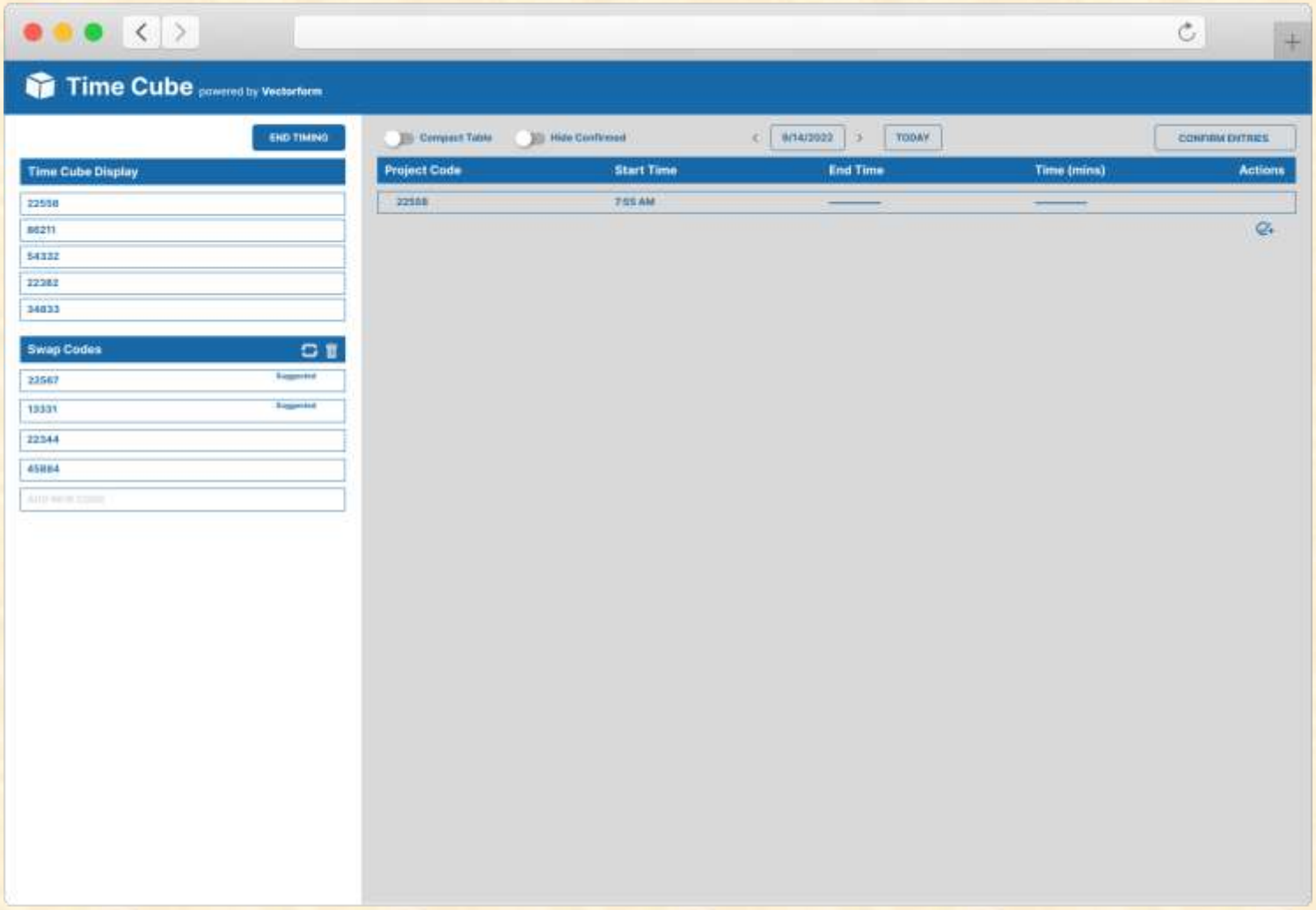
Screen Mockup: Time Cube



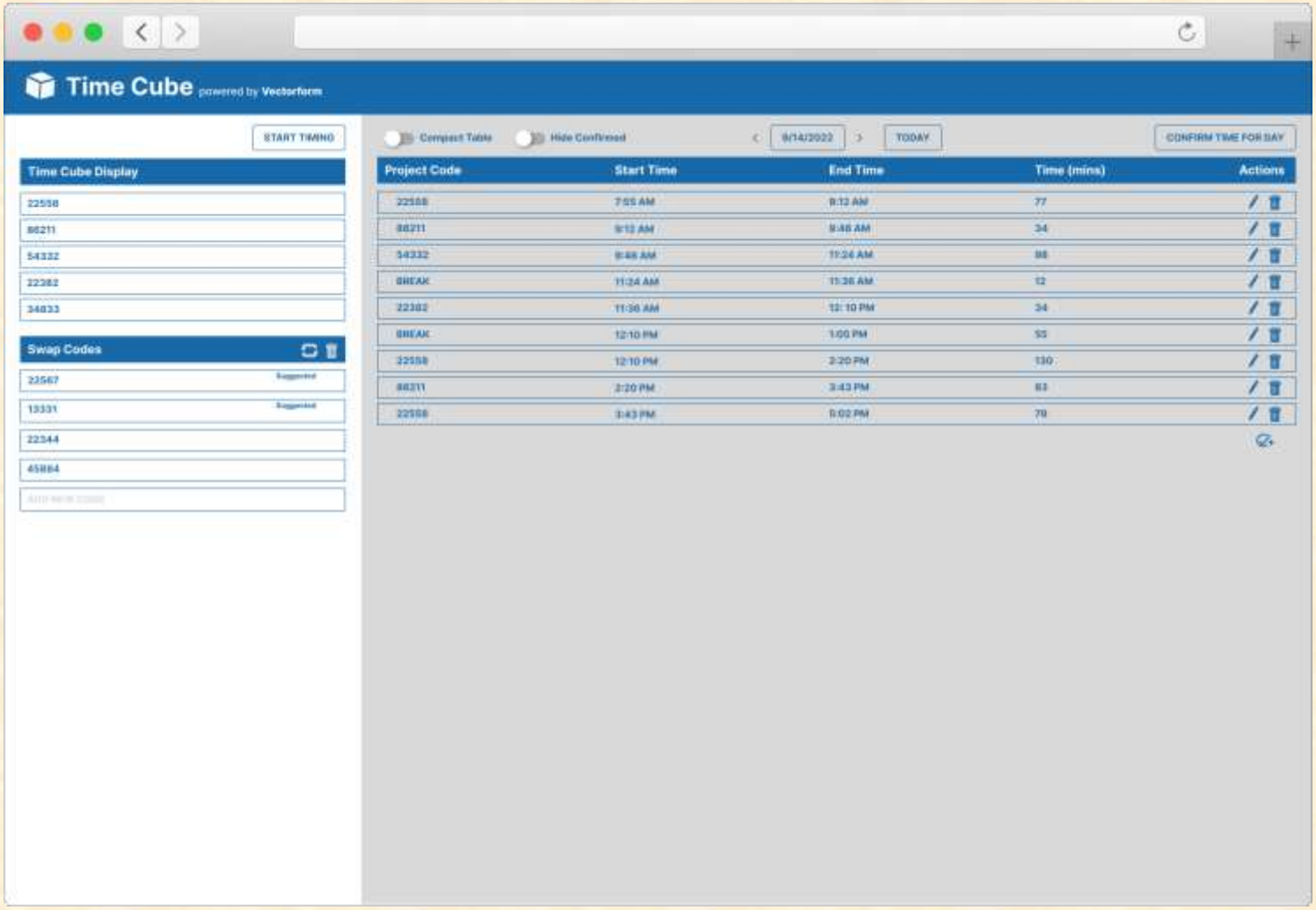
Screen Mockup: Web Application



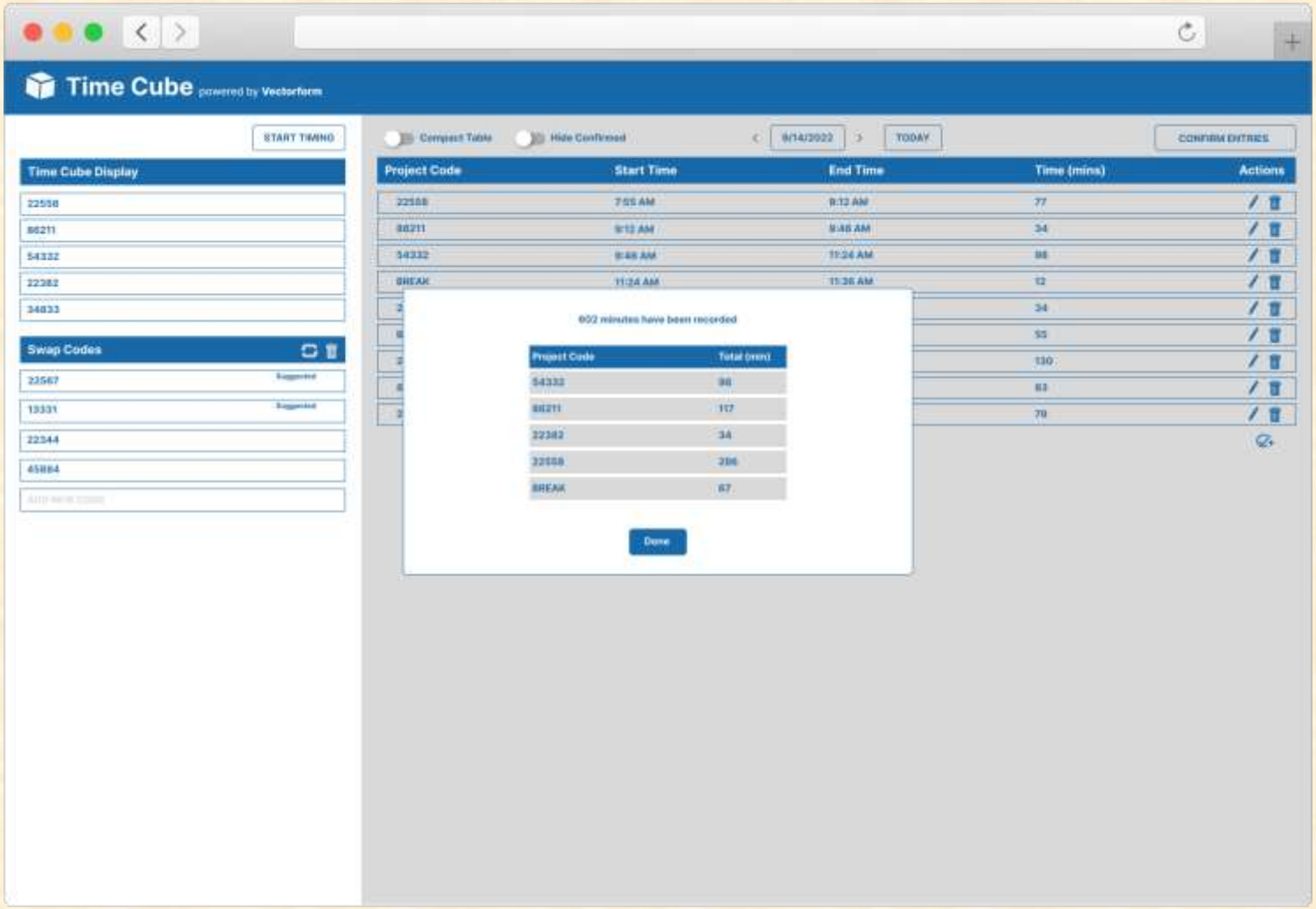
Screen Mockup: During Timing



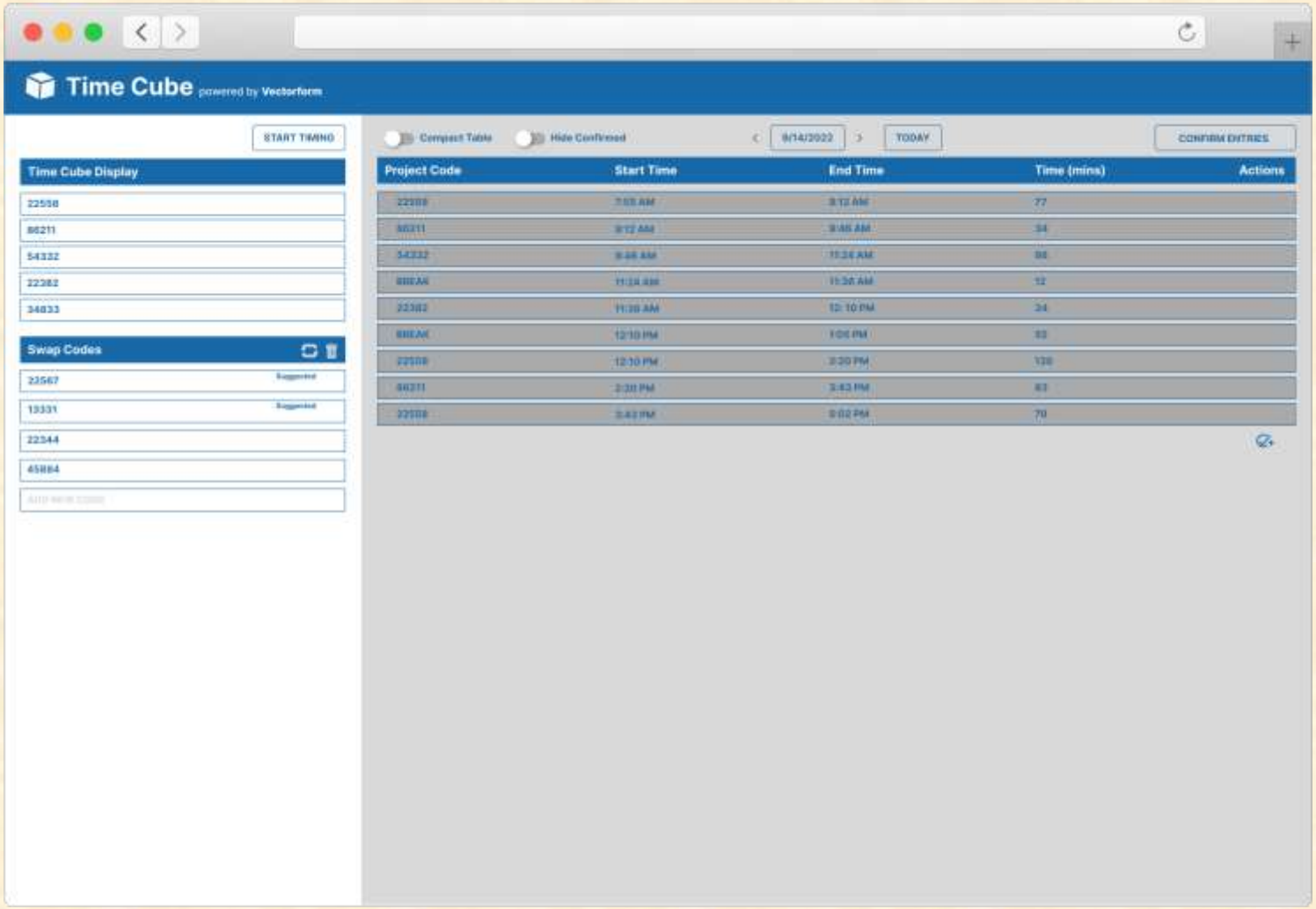
Screen Mockup: After Timing



Screen Mockup: Submission Box



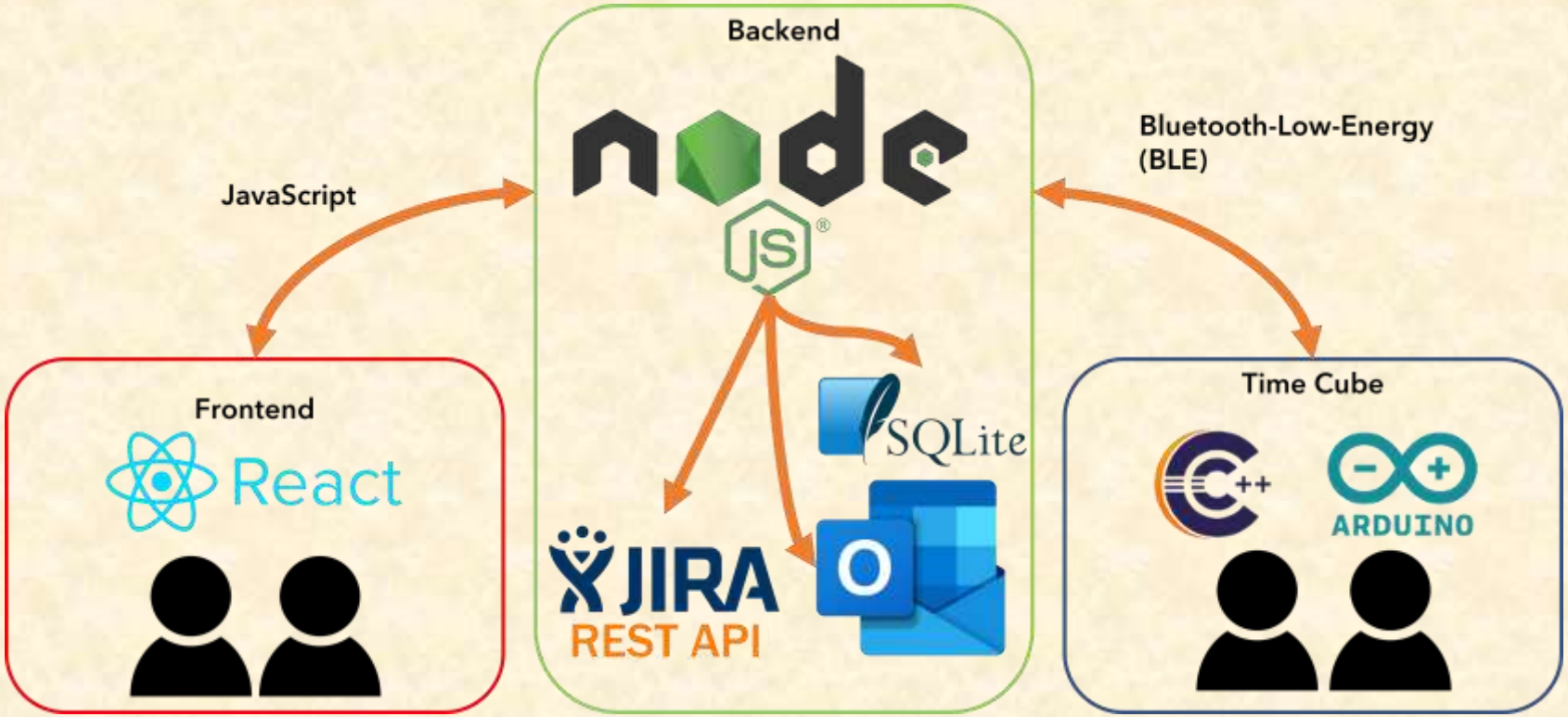
Screen Mockup: Confirmed Entries



Project Technical Specifications

- Time Cube comprised of multiple low-level components
- Desktop middleware and backend application
- Frontend web application

Project System Architecture



Project System Components

- Hardware Platforms
  - Arduino MKR 1010 Wi-Fi - Time Cube
- Software Platforms / Technologies
  - Bluetooth Low Energy (BLE)
  - React
  - Node.js
  - SQLite
  - Jira API
  - Outlook Calendar API

Project Risks

- Bluetooth Communication
  - The web application needs to communicate with the Arduino via Bluetooth. The data needs to be accurately sent in a timely manner
  - Research BLE and get the web application and Arduino communicating as soon as possible
- Tracking Accelerometer and Time Data
  - The orientation needs to be accurately tracked so the Time Cube does not record wrong entries
  - Test multiple time implementations to determine the most stable and efficient method for transitioning between project codes
- Deriving Project Code from API Data
  - The web Application needs to derive and suggest project code from the user's calendar and project management board
  - Research and determine received from APIs. Build mock data for determining the best data point to concentrate on

Questions?