Project Plan Presentation
Time Cube

The Capstone Experience

Team Vectorform

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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
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

Frontend: React

Backend: Node.js

Bluetooth-Low-Energy (BLE)

SQLite

REST API: JIRA

Time Cube: C++, Arduino
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