MICHIGAN STATE
UNIVERSITY

Project Plan Presentation
Custom Data Visualization Dashboard

The Capstone Experience

Team Atomic Object

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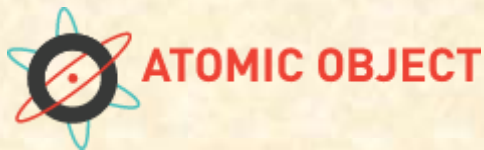Department of Computer Science and Engineering
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Fall 2022

From Students…
…to Professionals

Project Sponsor Overview

- Atomic Object is a software design and development consultancy

- They make custom software tailored to their clients' goals that is also stable, scalable, and secure

- They build/provide web apps, mobile apps, IoT/device software, desktop apps, and cloud capabilities

- Employee-owned B Corp, transparency is important

- Worked with 200+ organizations

Project Functional Specifications

- The current dashboard is outdated and rarely used

- Employees have different preferences

- Our new dashboard:
  - Increases transparency of updated company metrics and company social life
  - Visualizes data from multiple sources
  - Is well-organized and customizable
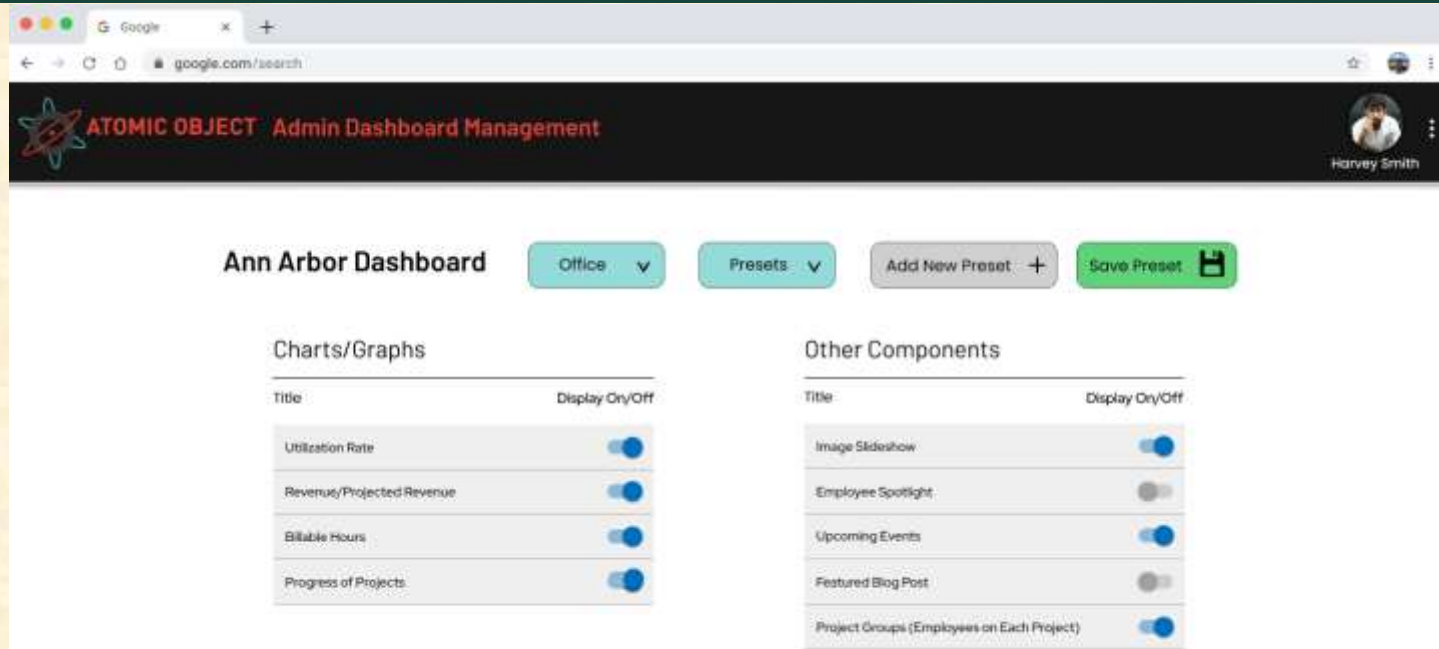
Project Design Specifications

- Dashboard is a web application that pulls information from various internal company data sources
  - Viewed on in-office TV
  - Quantitative components may be displayed as graphs, bar charts, line charts, or progress bars
- Additional admin management web page for admins to remotely control what is displayed on the dashboard
  - Customize features using on/off switches for each category and individual components
  - Save combination of components with presets, each office has ability to set their own preferred components
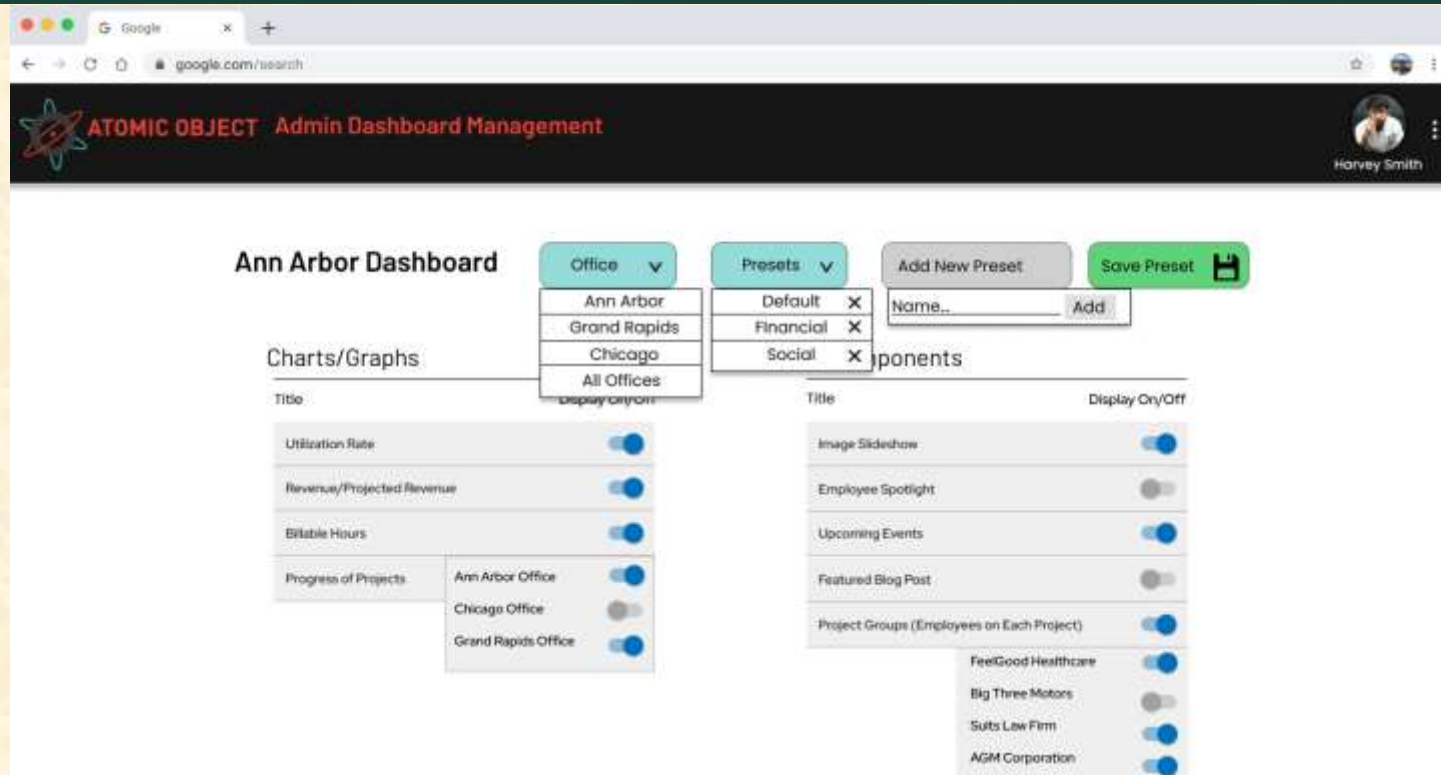
Screen Mockup: Dashboard on TV

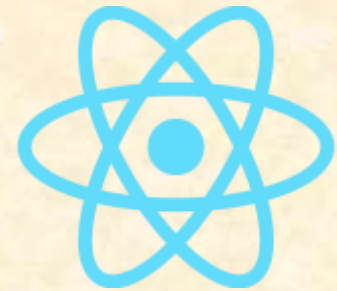# Screen Mockup: Admin Dashboard Management Web Page

Screen Mockup: Admin Dashboard Management Web Page (Selected)

Project Technical Specifications

- Front End
  - ReactJS
  - HTML, CSS
- Back End
  - Firebase
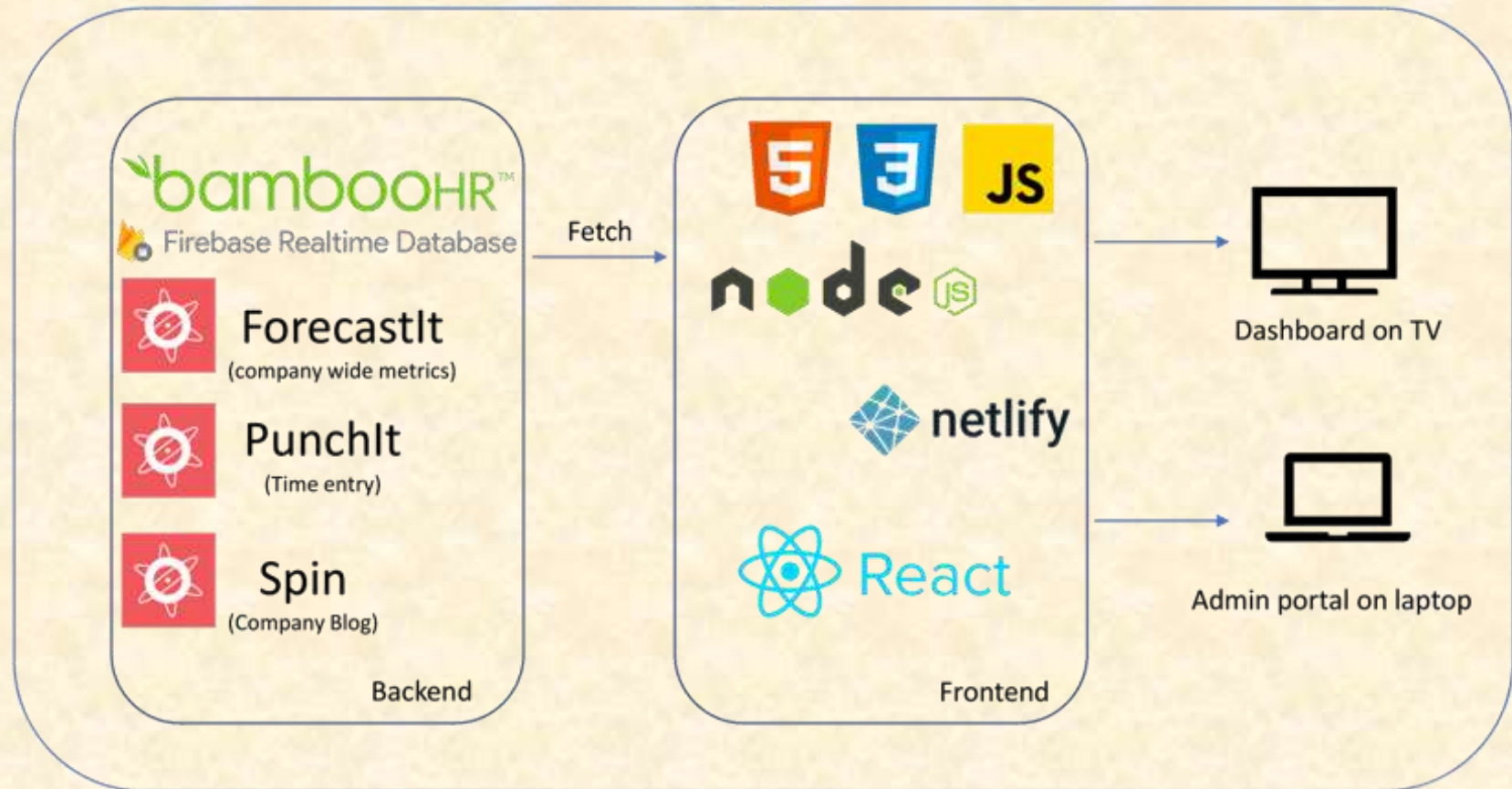 - NodeJS (fetches data from Back End to Front End)
- Data Sources
  - Internal Company Websites/APIs
  - Google Calendar, Spreadsheets, JSON files

Project System Architecture

Project System Components

- Hardware Platforms
  - Company server, in-office TV, laptops, Chromecast/Roku remote
- Software Platforms/Technologies
  - ReactJS, HTML, CSS, Bootstrap, Recharts
  - NodeJS, Firebase Realtime Database, Netlify
- Data Sources: BambooHR, Spin, ForecastIT, PunchIT, Google Calendar, Redash, Google Drive spreadsheets, JSON files
- Development Environment: Visual Studio/Visual Studio Code
- Production Environment: Intranet Web server

Project Risks

- Project Progress Calculation
  - Right now, we don't have a clear idea on how to calculate project progress and ensure accuracy.
  - Mitigation: Use Atomic Object's billable hours as a main factor to come up with a formula that the Atomic Object management would agree upon and approve.
- Admin Customization Presets
  - Atomic Object has three offices with a fourth one in the works, and each has unique perspectives on what to show on the dashboard in their offices. So the dashboard variants for each office need to be saved as presets.
  - Mitigation: Create an admin dashboard editing page that manages the dashboard variants and saves the preset data in Firebase Realtime Database.
- Fill Up the Dashboard
  - We plan to have many components to add to the dashboard and allow admins to edit what components to show. So, sometimes there can be a few or a lot of components and this could affect user experience if the dashboard does not auto adjust the size of each component.
  - Mitigation: Research and look for the best fitting JavaScript libraries that organize the components in a way which is user friendly.

Questions?