

**MICHIGAN STATE**  

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**UNIVERSITY**

# Project Plan

## Ford Accelerate Monitor

### The Capstone Experience

Team Ford

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*From Students...  
...to Professionals*

# Functional Specifications

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- The Ford Accelerate Monitor will monitor software statistics throughout the software development process
- Our project provides the convenience of build failure notifications, as well as different statistics about the software projects by asking Google Assistant
- Teams will be able to access the Accelerate Monitor by registering through our web portal

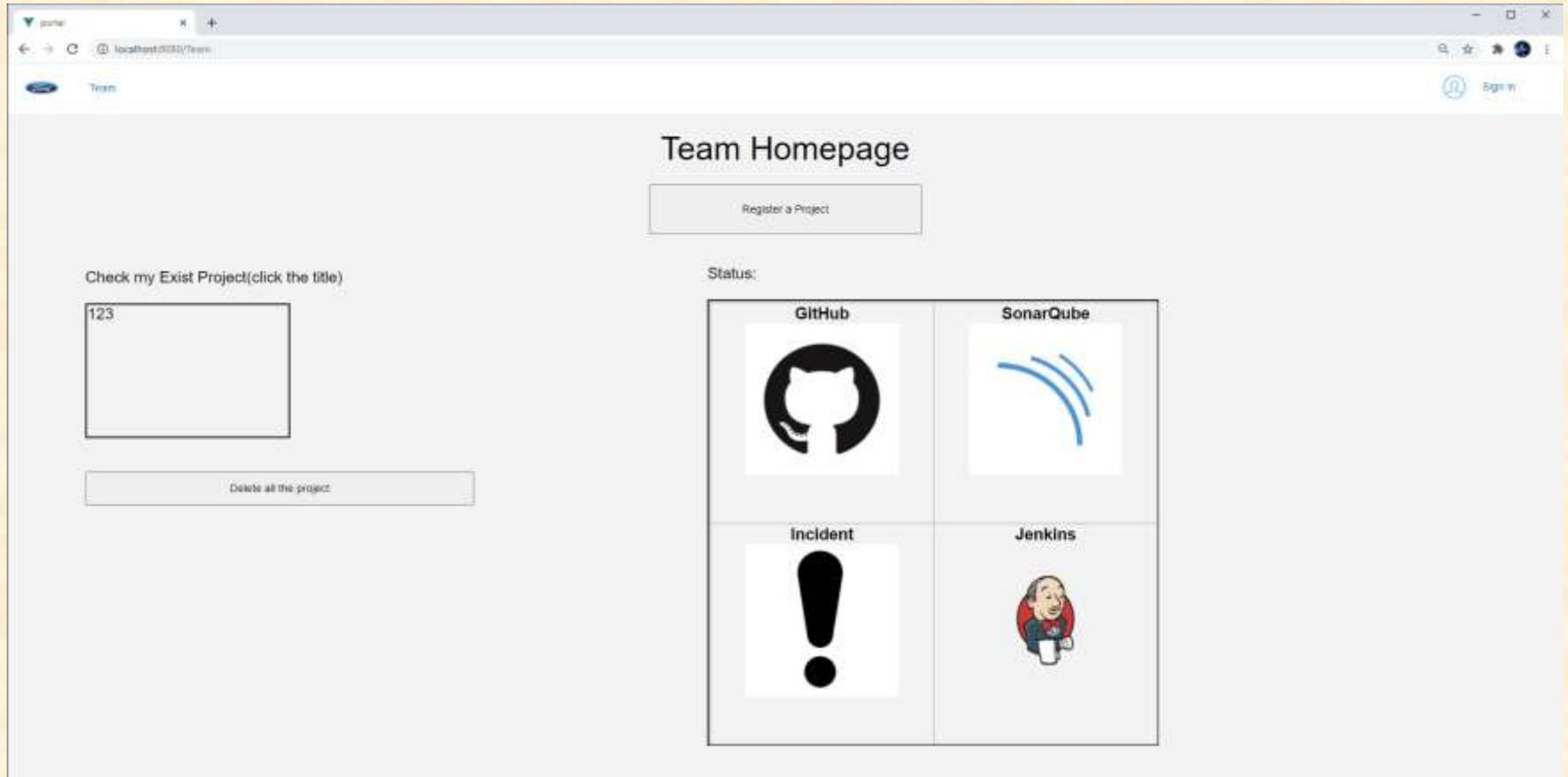


# Design Specifications

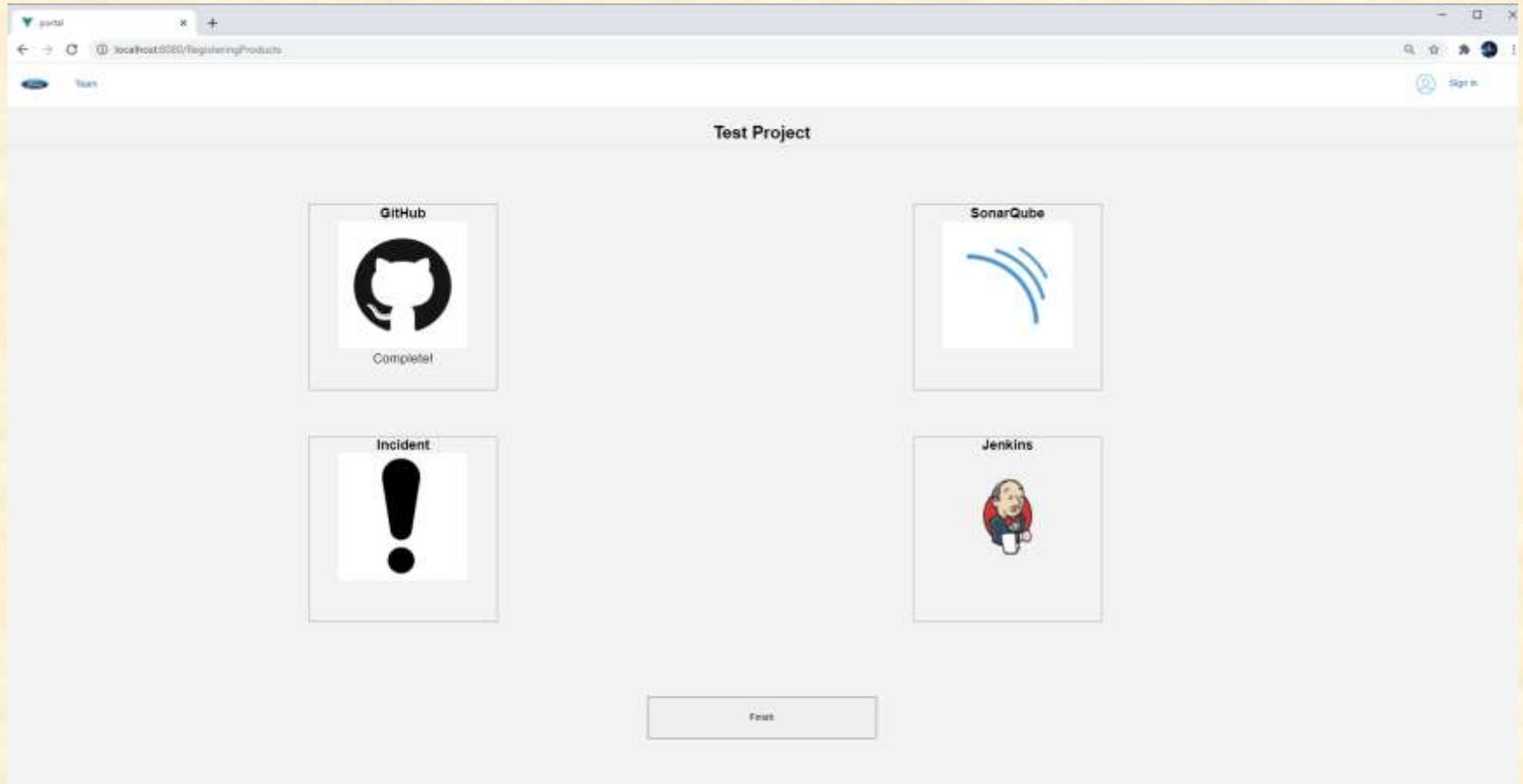
- Web Portal
  - Allows users to register teams, projects and products
  - Users can also manage and edit registered information
- CI/CD Product Integration
  - Integration of Jenkins, GitHub, and SonarQube (stretch) instances
  - Software statistics calculated with product information
- Smart Home Device Skill
  - Google Assistant and Alexa (stretch)
  - Users can retrieve software statistics for their team by asking structured questions



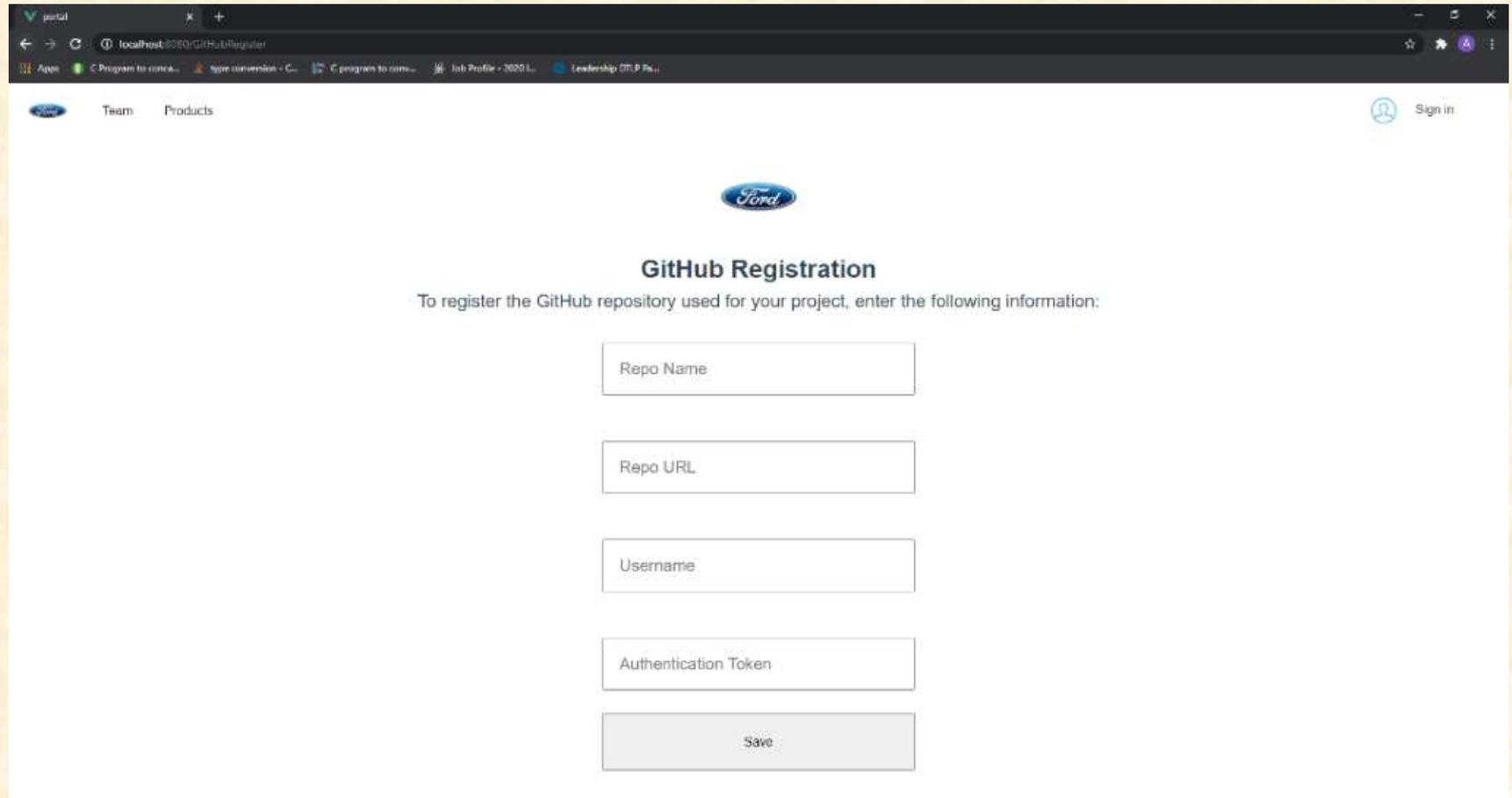
# Team Homepage



# CI/CD Products for Registration



# GitHub Instance Registration



The screenshot shows a web browser window with the address bar displaying "localhost:8080/GitHubRegister". The page features a navigation bar with "Team" and "Products" links, and a "Sign in" button. The main content area displays the Ford logo, the title "GitHub Registration", and the instruction: "To register the GitHub repository used for your project, enter the following information:". Below this are four input fields: "Repo Name", "Repo URL", "Username", and "Authentication Token". A "Save" button is positioned at the bottom of the form.

Team Products Sign in



### GitHub Registration

To register the GitHub repository used for your project, enter the following information:

Repo Name

Repo URL

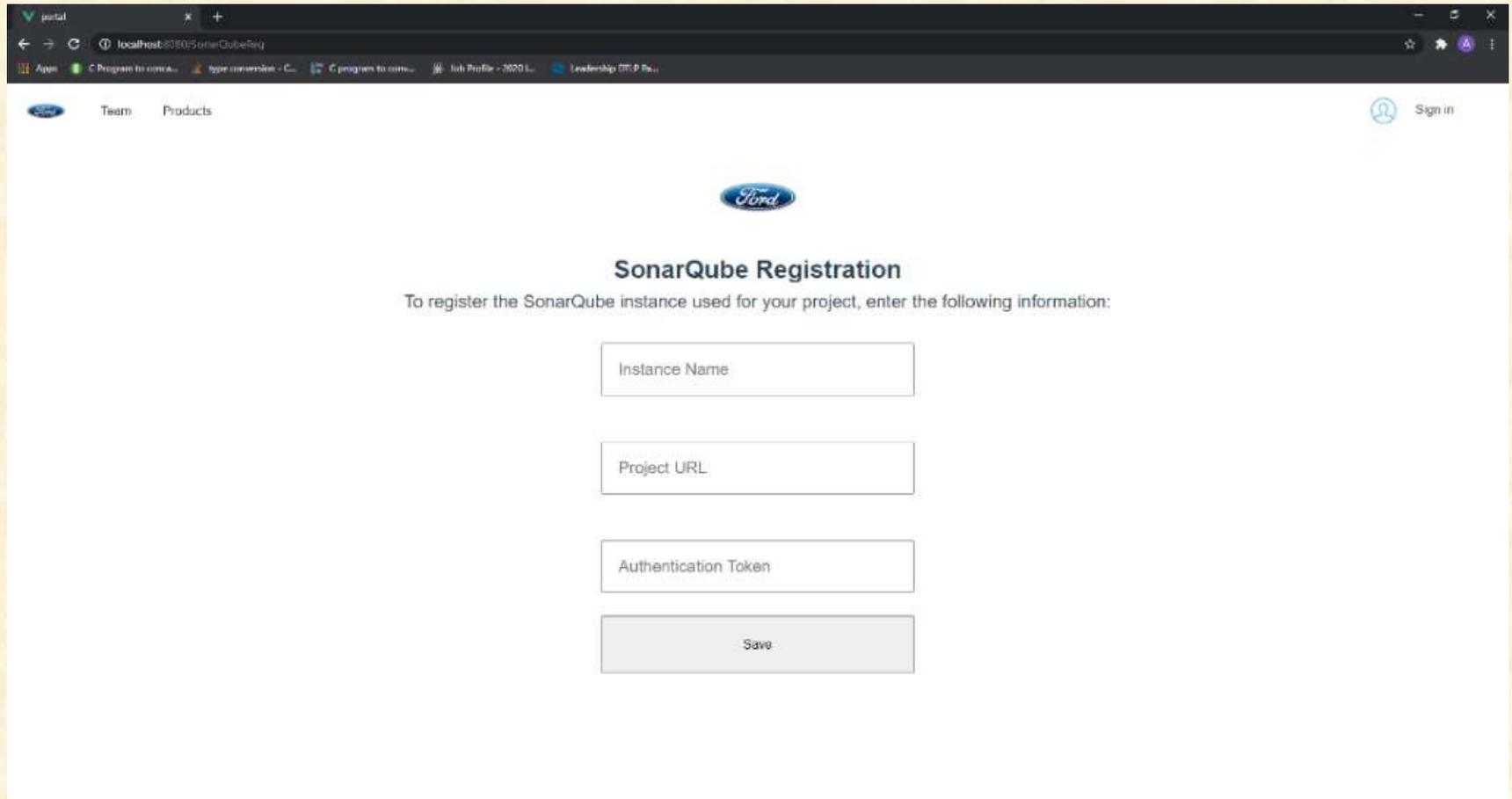
Username

Authentication Token

Save



# SonarQube Instance Registration



The screenshot shows a web browser window with the address bar displaying "localhost:8080/SonarQube/". The page header includes the SonarQube logo, "Team", "Products", and a "Sign in" link. The main content area features the "Ford" logo, the heading "SonarQube Registration", and the instruction "To register the SonarQube instance used for your project, enter the following information:". Below this are four input fields: "Instance Name", "Project URL", "Authentication Token", and a "Save" button.

localhost:8080/SonarQube/

Team Products Sign in



### SonarQube Registration

To register the SonarQube instance used for your project, enter the following information:

Instance Name

Project URL

Authentication Token

Save



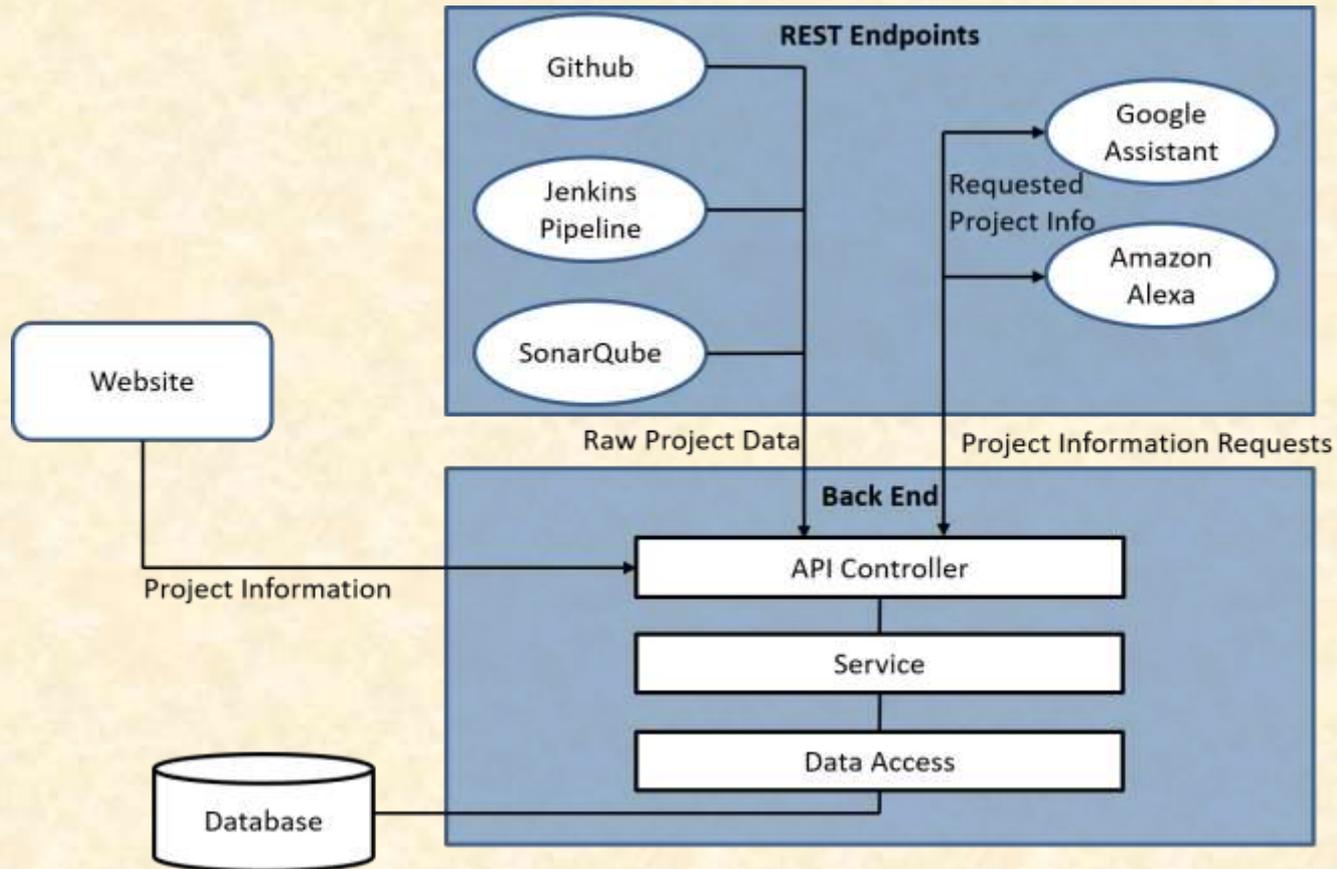
# Technical Specifications

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- API Endpoints
  - Deployment, incident, and code quality
  - Connecting front end and back end
- Database
- Smart Home Device Skill
- Test Plan
  - Focus on TDD
  - Peer code reviews



# System Architecture



# System Components

- Hardware Platforms
  - One iMac will host our web portal and our Jenkins server
  - Another iMac will host our back end
- Software Platforms / Technologies
  - We are using Firebase for our database
  - Back end is a Java/SpringBoot application
  - Front end is a JavaScript/VueJS application
  - Google Actions web application for Google Assistant
  - IDEs include IntelliJ and Visual Studio Code



# Risks

- Integrating Smart Home Device skill into application
  - The smart home device skill must be integrated with the back end of the application in order to communicate with the database and users.
  - Create basic skill to test communication channels early
- Calculating Accelerate Statistics
  - Accelerate Statistics require data from a variety of CI/CD products. Some statistics are readily available, and some require calculation, which can alter our database schema
  - Document the statistics the user will be able to request and how they are calculated. Identify which statistics can be taken directly from products and which require calculation.
- UX of Web Portal Design
  - Web portal must have user friendly way to register users and CI/CD products their team utilizes. The user should also find information about the smart home device skills available through the web portal. We must also consider incorporating a dashboard as a stretch goal.
  - Create mockups to show our client and receive feedback.
- SSL Required for Google Assistant Integration
  - Google Assistant only allows webhooks to an https website. Currently, neither our front end nor our back end is an https website.
  - Consult with Ford representatives about getting an SSL certificate. Currently waiting for approval.



# Questions?

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