

MICHIGAN STATE
UNIVERSITY

Project Plan

Ford Accelerate Monitor

The Capstone Experience

Team Ford

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From Students...
...to Professionals

Fall 2020

Functional Specifications

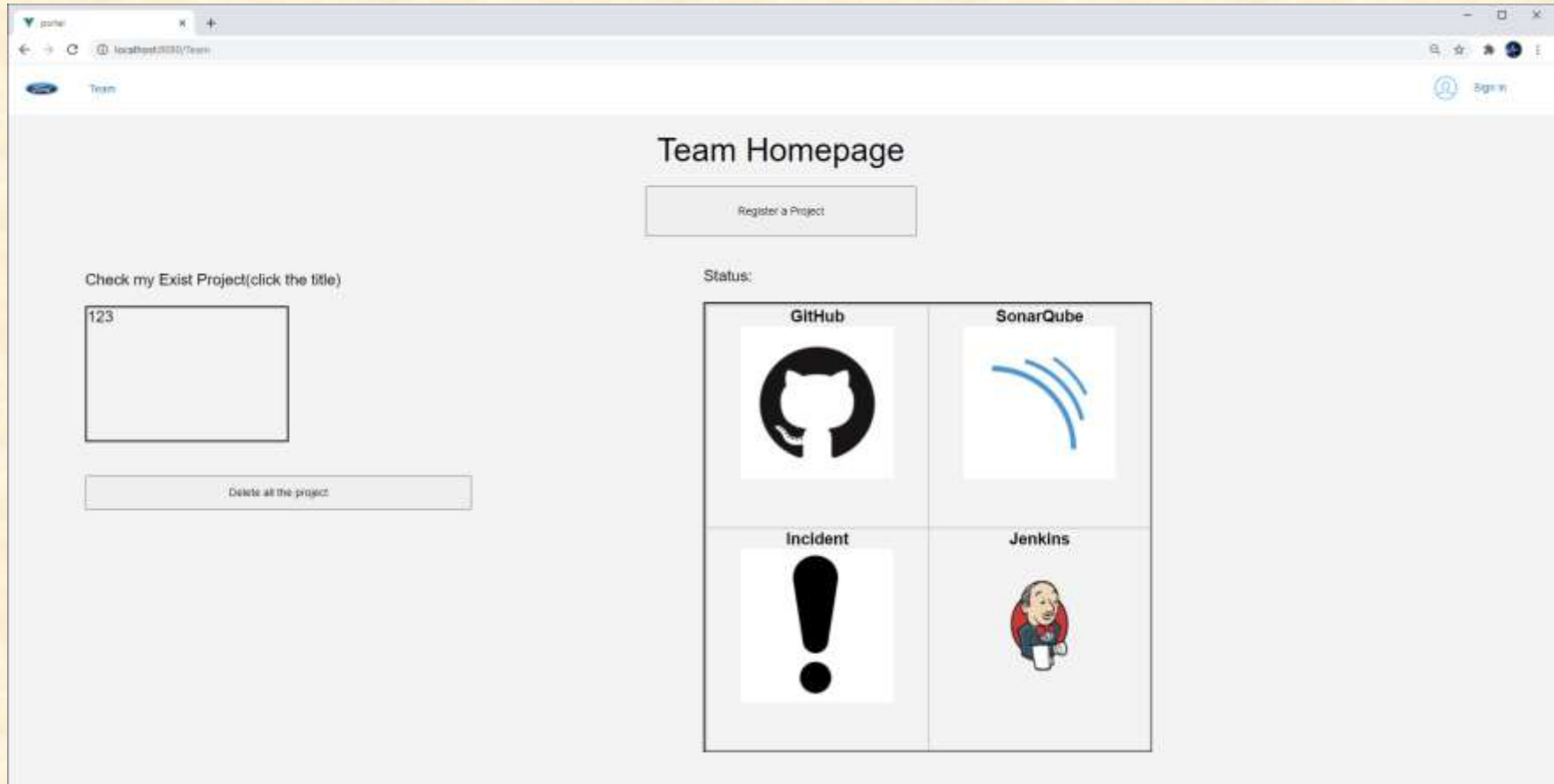
- The Ford Accelerate Monitor will monitor software statistics throughout the software development process
- Our project provides the convenience of build failure notifications, as well as different statistics about the software projects by asking Google Assistant
- Teams will be able to access the Accelerate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

Design Specifications

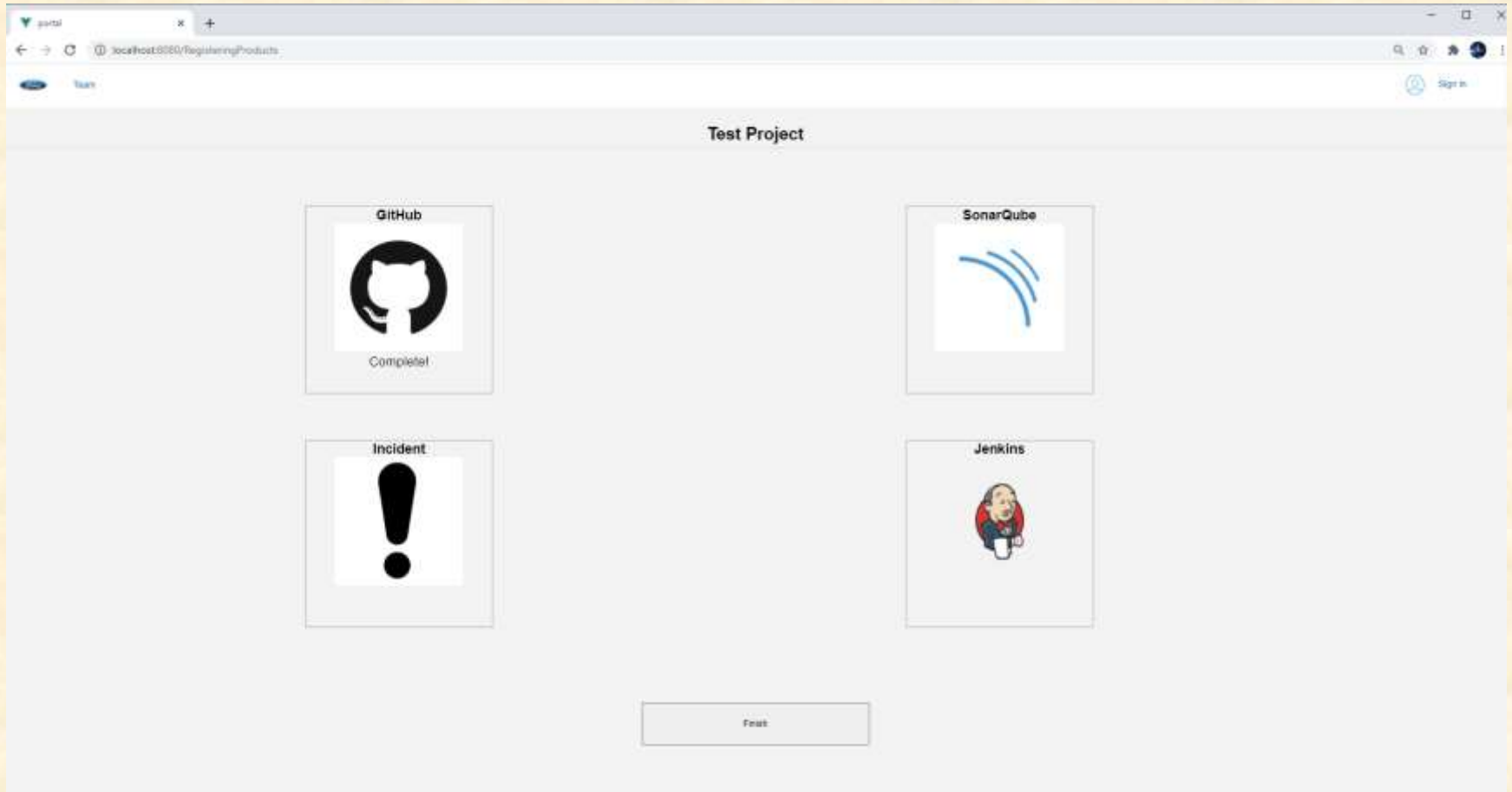
- Web Portal
 - Allows users to register teams, projects and products
 - Users can also manage and edit registered information
- CI/CD Product Integration
 - Integration of Jenkins, GitHub, and SonarQube (stretch) instances
 - Software statistics calculated with product information
- Smart Home Device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



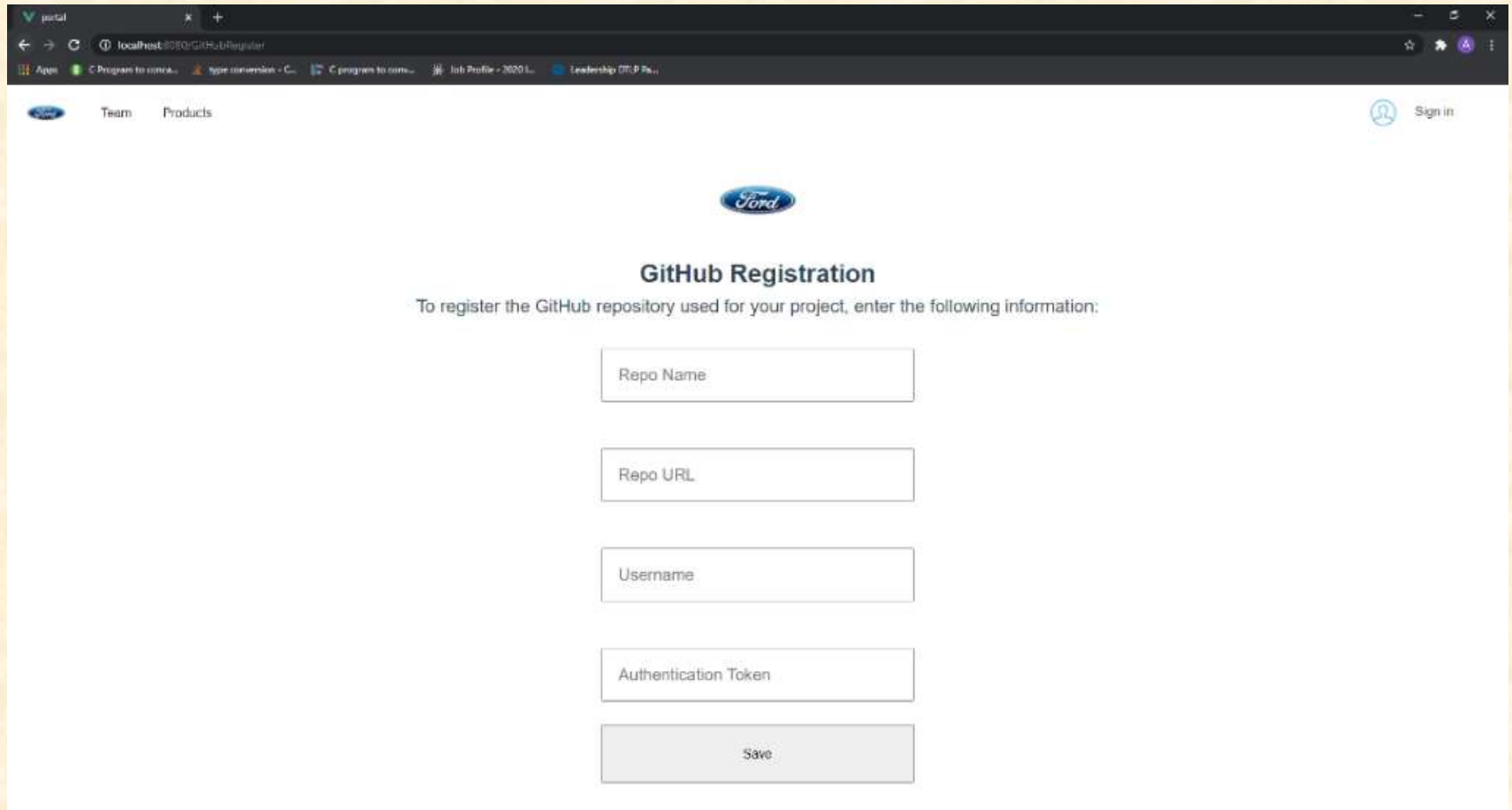
Team Homepage



CI/CD Products for Registration



GitHub Instance Registration



The screenshot shows a web browser window with the address bar displaying 'localhost:3000/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 and the title 'GitHub Registration'. Below the title, a message states: 'To register the GitHub repository used for your project, enter the following information:'. The registration form consists of four text input fields: 'Repo Name', 'Repo URL', 'Username', and 'Authentication Token'. A 'Save' button is located at the bottom of the form.

Sign in

GitHub Registration

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

Repo Name

Repo URL

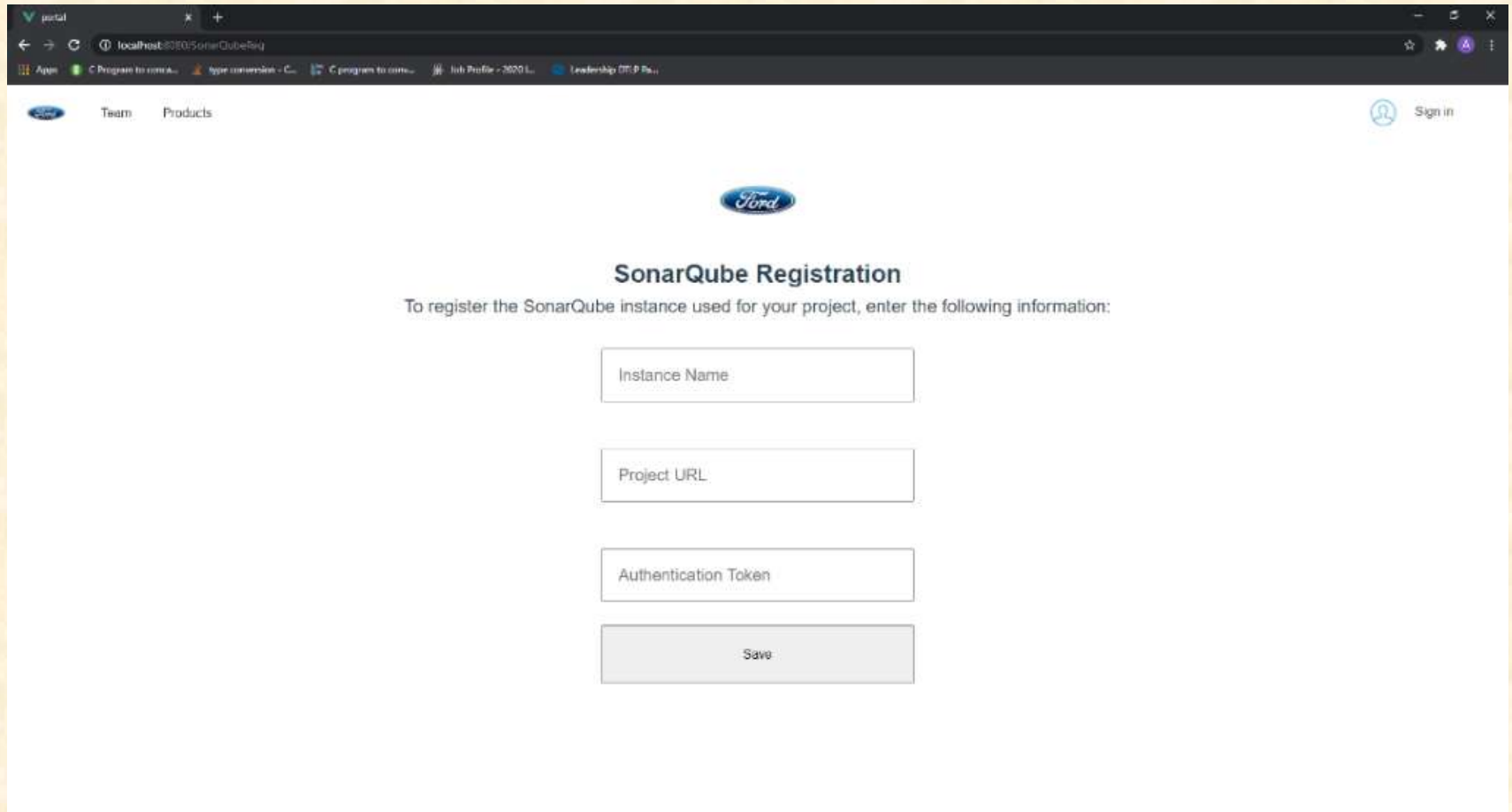
Username

Authentication Token

Save



SonarQube Instance Registration



The screenshot shows a web browser window with the address bar displaying 'localhost:3000/SonarQubeReg'. The page features a navigation bar with 'Team' and 'Products' links, and a 'Sign in' button. The main content area is titled 'SonarQube Registration' and includes a sub-header: 'To register the SonarQube instance used for your project, enter the following information:'. Below this, there are four input fields: 'Instance Name', 'Project URL', 'Authentication Token', and a 'Save' button.

localhost:3000/SonarQubeReg

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

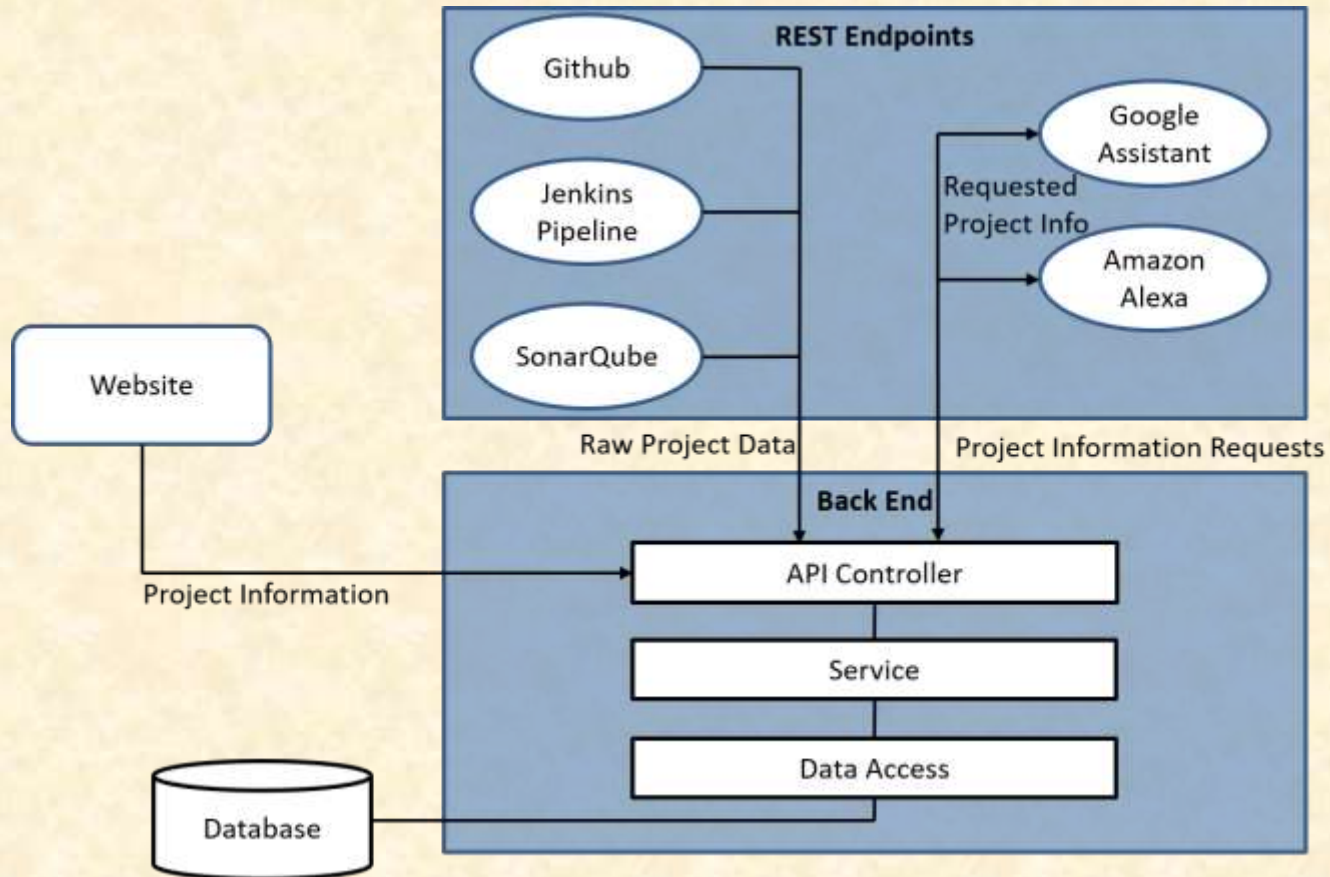
Save



Technical Specifications

- 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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