

MICHIGAN STATE

UNIVERSITY

Project Plan Presentation

Cooking GPS

The Capstone Experience

Team Whirlpool

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

Project Sponsor Overview

- Based in Benton Harbor, MI
- Largest appliance manufacturer in the US
- \$19 billion in annual revenue
- 59,000 employees
- 14 major global brands

Whirlpool



Project Functional Specifications

- Simplify the meal preparation process and planning process
- Coordinate the simultaneous completion of multiple recipes
- Interact with Whirlpool appliances to provide a seamless cooking experience
- Customize the meal preparation procedure



Project Design Specifications

- Mobile application connected to built-in appliance displays
- Ability to select pre-curated meals as well as individual recipes to create custom meals
- A meal preparation view with step-by-step instructions and estimated completion time
- Appliance specific information displayed on Whirlpool appliance screens



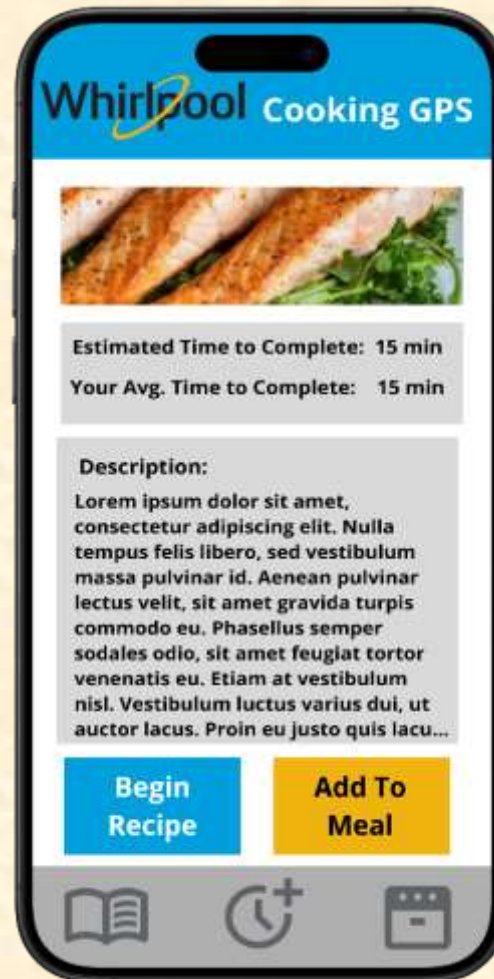
Screen Mockup: Home Page



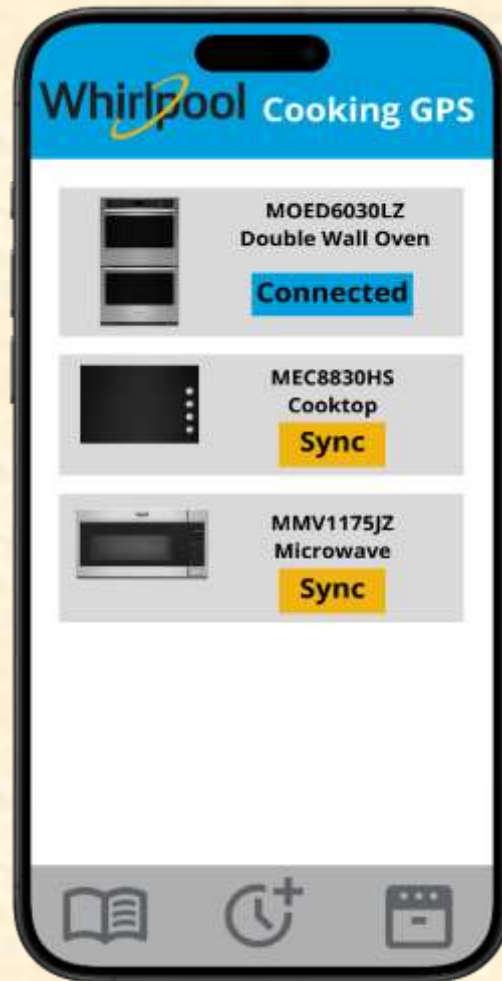
Screen Mockup: Recipes Page



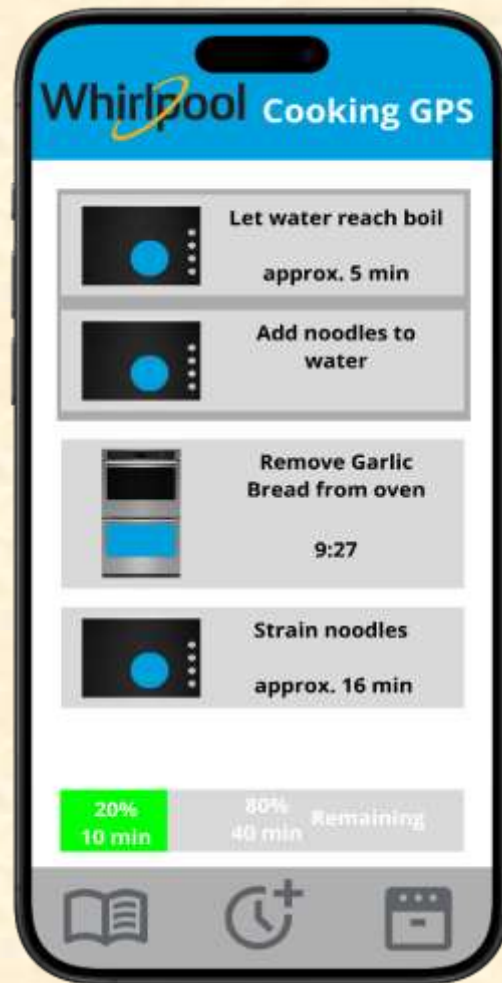
Screen Mockup: Recipe Preview



Screen Mockup: Appliances Page



Screen Mockup: Meal Cooking Page

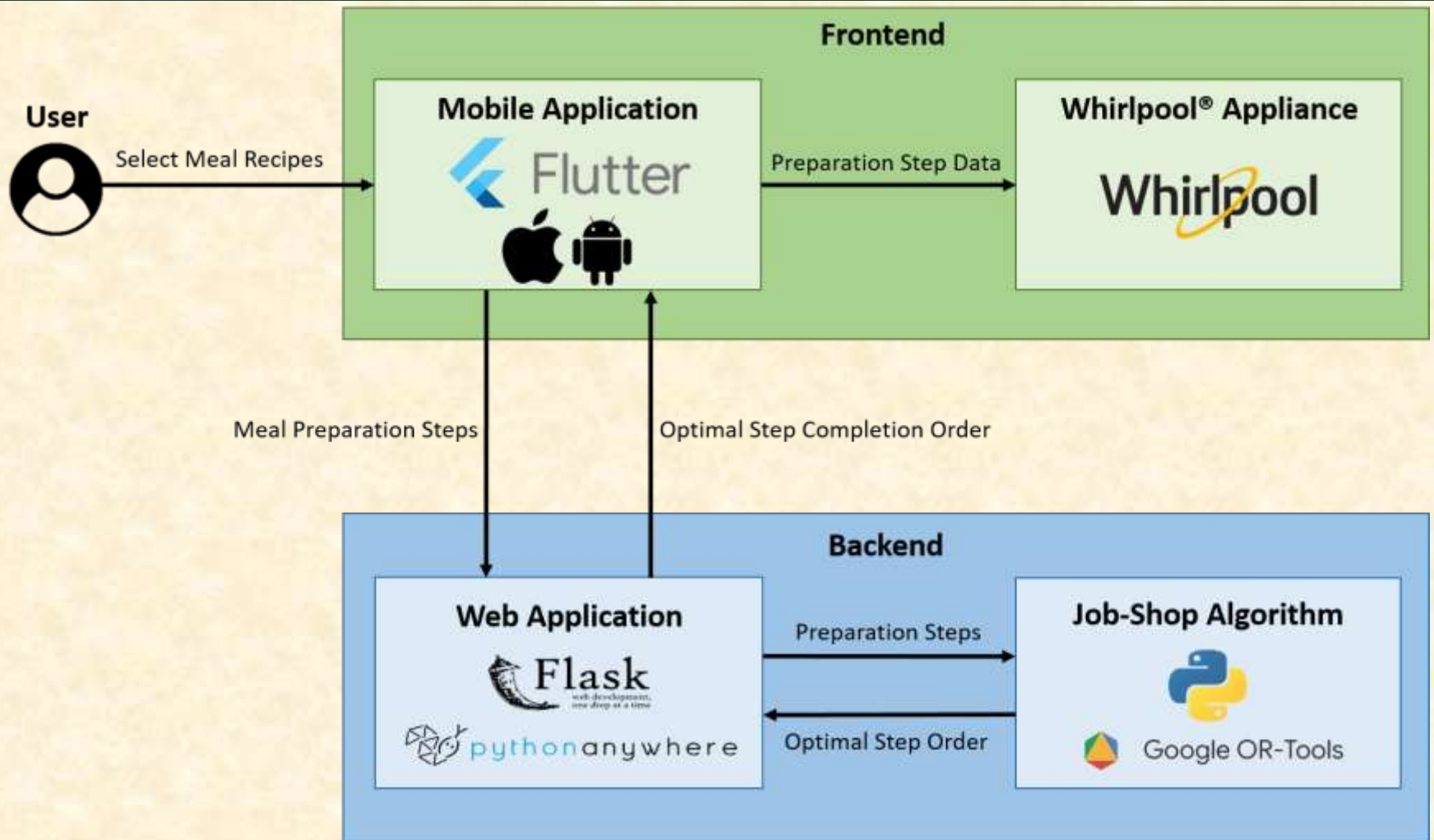


Project Technical Specifications

- A mobile application built using the Flutter framework
- A Flask web application that provides an API to access the backend algorithm hosted on PythonAnywhere
- A Job-Shop type algorithm used to compute the optimal completion order of meal preparation steps
- Integration into Whirlpool appliances via WebSocket



Project System Architecture



Project System Components

- Hardware Platforms
 - iOS mobile device
 - Standalone Whirlpool appliance display
- Software Platforms / Technologies
 - Flutter
 - Flask
 - Google's OR-Tools
 - Python



Project Risks

- Accounting for all variables in the Job-Shop algorithm
 - Mitigation: Research related scheduling problems and test different constraint types in the model.
- Re-routing preparation steps
 - Mitigation: Research methods of re-routing a scheduling problem and create prototypes to ascertain the most optimal solution.
- Integration into Whirlpool appliance screens
 - Mitigation: Discuss with our client the current ways that Whirlpool interacts with appliances via their mobile apps.



Questions?

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