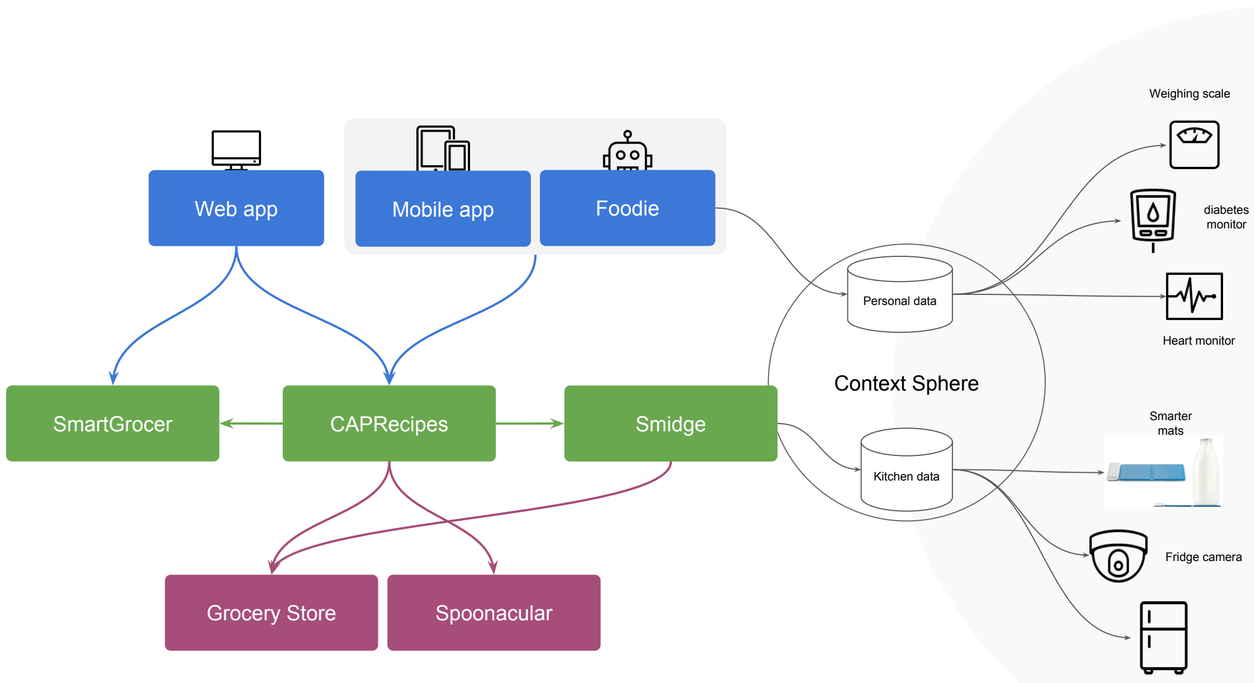
Cognitive IoT Recipe Maven

Digital Expertise in the Kitchen

The goal of this Cognitive IoT CAS Project is to develop applications and infrastructure to realize the cognitive IoT recipe maven based on integrated user, fridge and grocery store contexts, including smart fridge, grocery store incentives, personal health goals, dietary constraints, cultural backgrounds and family budget. On the one hand, this technology will allow grocery stores to incentivize users to frequent their stores. On the other hand, the project aims to promote healthy living, provide dietary aid, help reduce food waste, and optimize family grocery budgets.

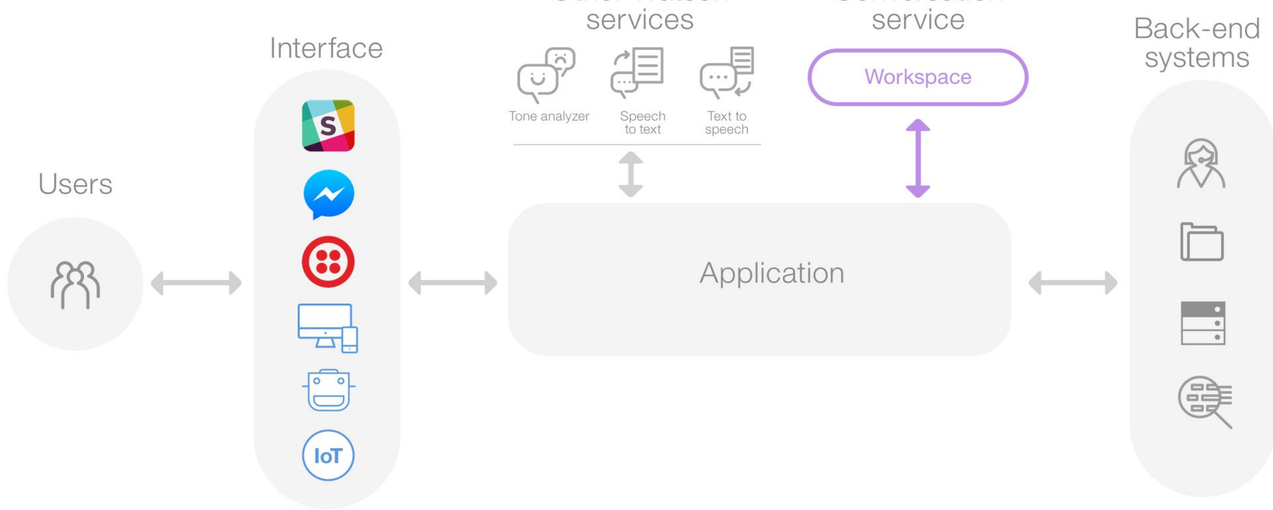
Overview



Key Stakeholders

> "We are moving from us having to learn how to interact with computers to computers learning how to interact with us."
>
> — Sean Johnson

Foodie: A Smart Conversational Agent



Implementation

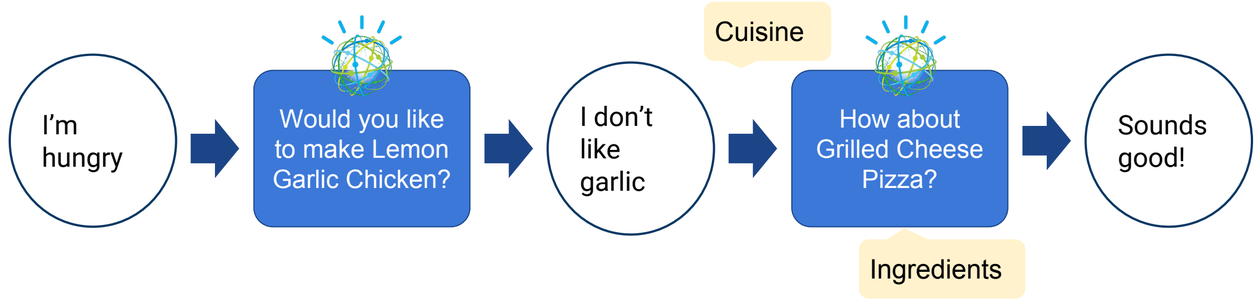
- Input to the application is ideally via a hybrid interface. This input serves as a request to the conversation engine which responds by returning the user's context. Contextual information is parsed by the application which sends out specific requests to the Spoonacular API based on the intent of the user.
- Features:
  - Recommend recipes based on user's dietary preferences, cuisines, ingredients
  - Get nutrition information for recipes
  - Set and update the user's dietary goals

Advantages of using a conversational interface

- Enables users to get more out of their technology.
- Reduces user effort and error in the completion of tedious tasks.
- Provides users with quick access to information, especially when information has to be collated from different sources.
- Conversational Platforms:

Under the Hood

- #Intents
  - Determine the purpose of arbitrary user input
  - Example: "**I'm feeling hungry**" is classified under the intent **#start_cooking**
- @Entities
  - Keyword identification
  - Example: "**I want to eat a french breakfast**" identifies
    - @cuisine = french
    - @mealType = breakfast
- Dialog
  - Possible flows of a conversation via **nodes**
  - **Nodes** are triggered by conditions
- Context
  - Mechanism for passing information between the dialog and the application



Future Work

- Integrating the application with a hybrid interface.
- Improving failure management
- Making responses better by exploiting of the personal context of a user
- Incorporating user goals for recipe suggestions
- Integrating Smart Fridges for suggesting recipes based on ingredients available

Conclusion

- Cognitive IOT Recipe Maven integrates food-related applications and uses context to collaboratively enhance the user experience.
- It includes CAPRecipes, a context-aware personalized recipes recommender, Foodie: a conversational agent for the smart kitchen, Smidge: An IoT Enabled Fridge and SmartGrocer: a profit-aware store path optimizer
- There is great potential for building systems which cross context barriers and enhance user experiences.

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Academic Applied Research Outcomes

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