System and Software Architecture Description (SSAD)

"Fooder"

QWERTY

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Version History

Date	Author	Version	Changes made	Rationale
08/25/05	PA	2.0	· Original template for use with Instructional ICM-Sw v1.0	· Initial draft for use with Instructional ICM-Sw v1.0
05/22/09	SK	2.1	· Embedded description in each Table	· To be consistent with ICM EPG template set standard V2.1
10/04/16	BO	2.2	In Technology-Independent Model Design · Added conceptual domain model · Separated "Process Realization Diagram" into "Robustness diagram" and "Sequence Diagram"	· For research data collection

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1. Introduction

1.1 Purpose of the SSAD

This document defines the architecture for the "Fooder"” application. It breaks down the multiple aspects of the system using charts, tables, and diagrams. The goal of this document to include as many details of the entire application as well as their functions.

1.2 Status of the SSAD

The status of the SSAD is in the original form. Updates will be made to the document as more design features are added. This is considered to be the first version of the SSAD.

2. System Analysis

2.1 System Analysis Overview

The primary purpose of the "Fooder” application is to help users to find a place to eat in a fun and intuitive way. Once the user is logged in to their profile "Fooder" will keep track of the user's preferences including location, types of restaurants to search for. The information on restaurants will be current and will include information such as price, ratings, description, pictures taken, and the ability to get directions to the location. All favorited restaurants will be saved to the profile for review at a later time.

2.1.1 System Context

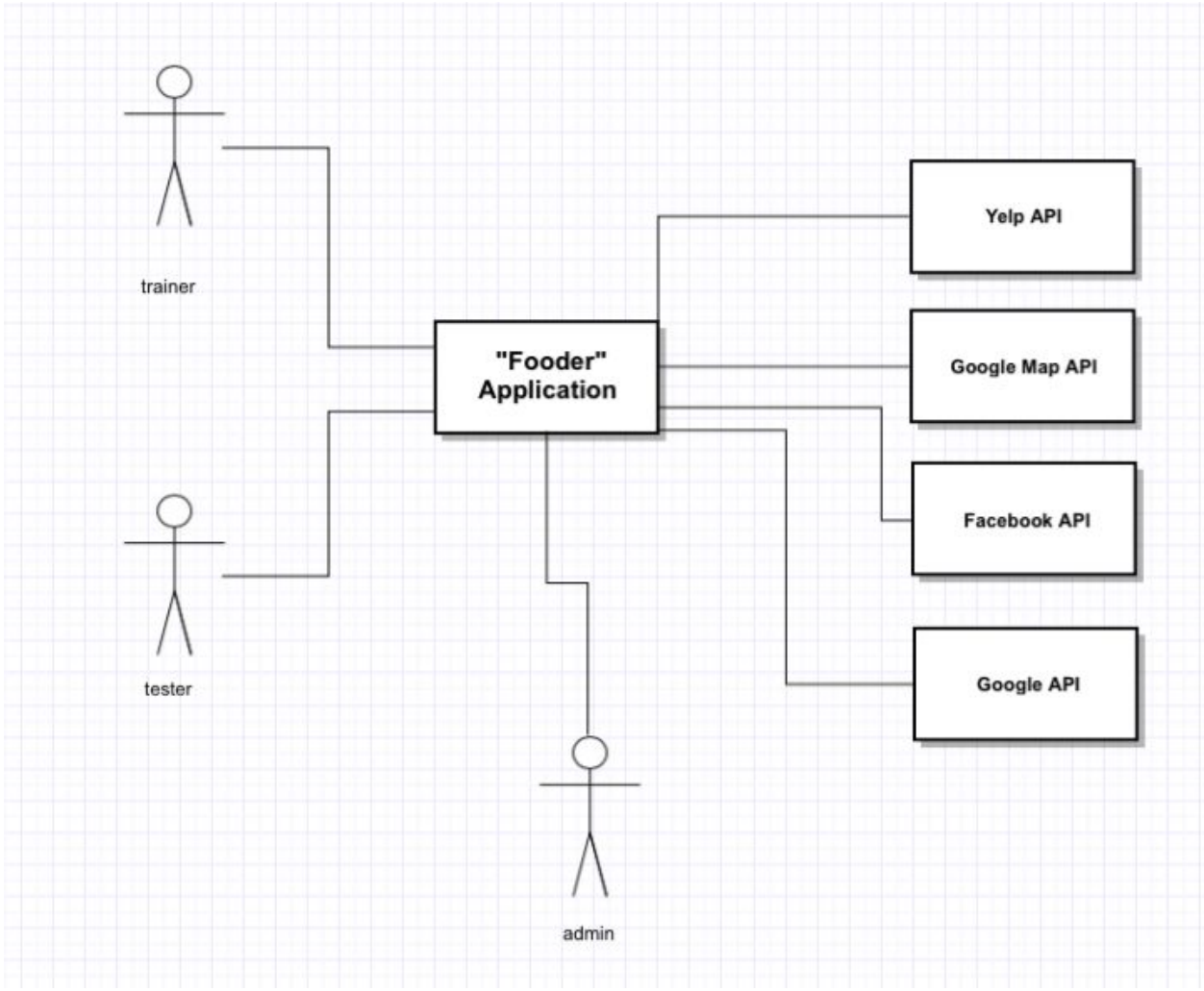


Figure 1: System Context Diagram

Table 1: Actors Summary

Actor	Description	Responsibilities
Jason Springer	Co-Lead Programmer	Coding, Quality Assurance

Alex Le	Project Manager	Documentation, Framework
Jake Motta	Co-Lead Programmer	Coding, Testing, Graphic Artist
Brandon Kao	Co-Lead Programmer	Coding, Testing

2.1.2 Artifacts & Information

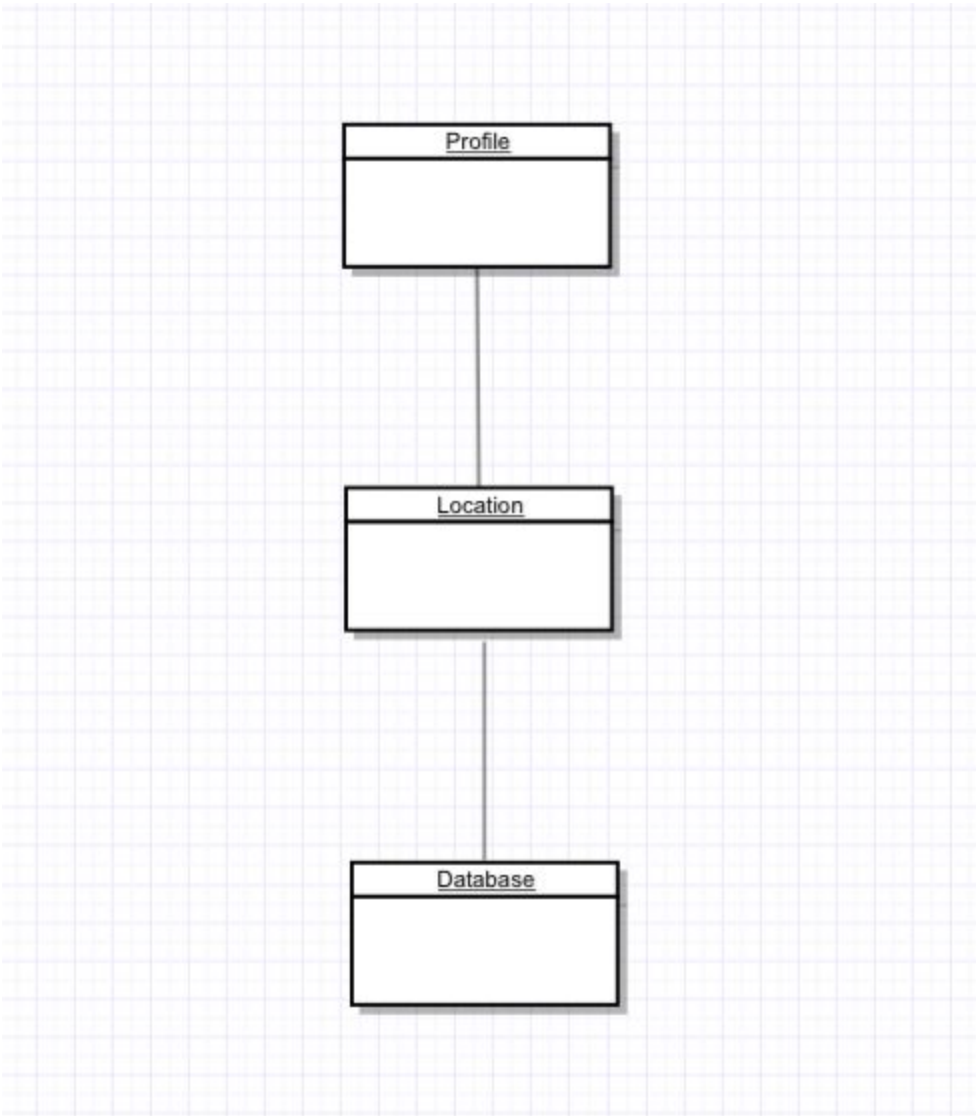
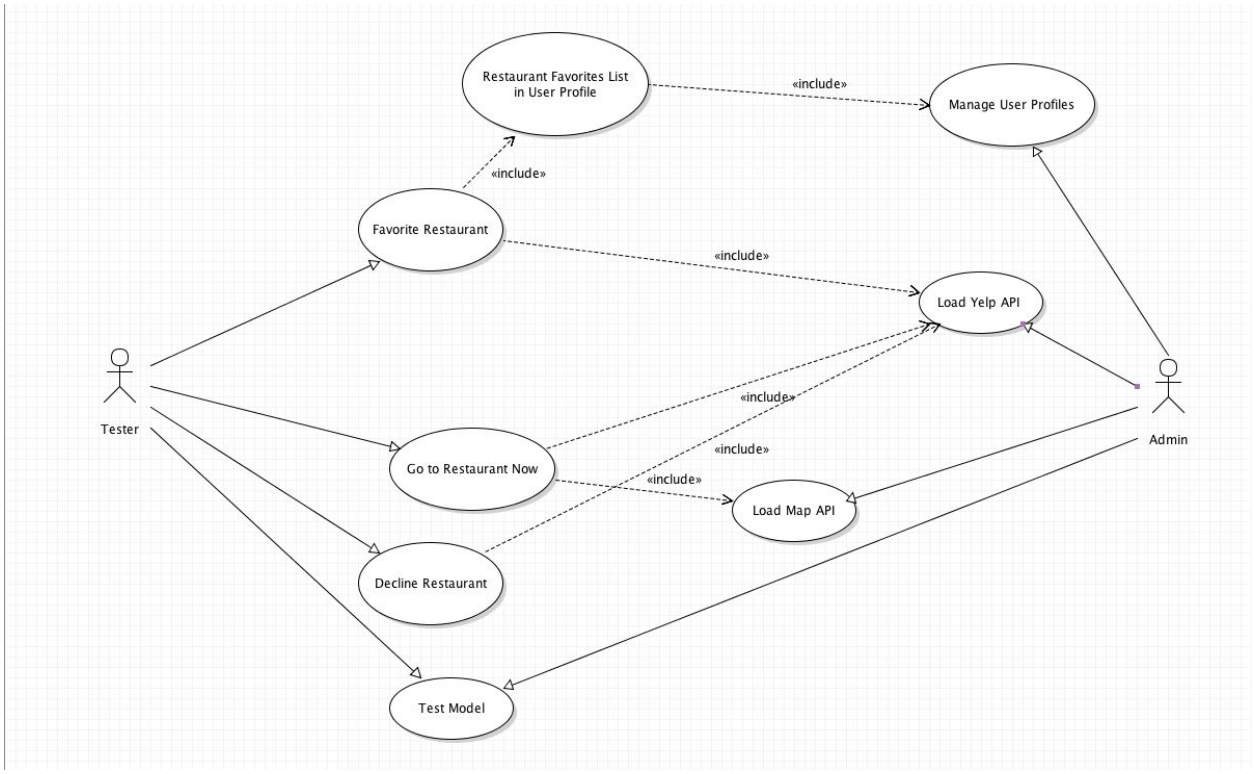


Figure 2: Artifacts and Information Diagram

Table 2: Artifacts and Information Summary

Artifact	Purpose
Profile	Save settings, favorites list
Location	Find restaurants nearby
Database	To save favorites and registered users

2.1.3 Behavior



<<Use-Case Diagram>>

Figure 3: Process Diagram

2.1.3.1 Capability x

2.1.3.1.1 Process y

Table 3: Process Description

Identifier	Add Favorite Restaurant
Purpose	Let user save restaurants for future lookup

Requirements	
Development Risks	Process needs to insure the user will be able to add restaurant to existing favorites database and user profile list, it will also need to inform user if restaurant cannot be added.
Pre-conditions	User must already have existing user profile, restaurant must be existing restaurant in yelp API
Post-conditions	User train model

Table 4: Typical Course of Action

Seq#	Actor's Action	System's Response
1	Trainer swipes right	Restaurant image will be swiped to the right and the heart will bounce and restaurant will be added to user favorites list

Table 5: Alternate Course of Action

Seq#	Actor's Action	System's Response
1	Trainer clicks the heart button	Restaurant image will be swiped to the right and the heart will bounce and restaurant will be added to user favorites list

Table 6: Exceptional Course of Action

Seq#	Actor's Action	System's Response
1	Click on Restaurant Image	Restaurant image shifts up and restaurant details such as cost and stars will appear
2	Click on heart	Restaurant image with details gets shifted to right and restaurant is added to user favorite lists

Identifier	Decline Restaurants
Purpose	Decline restaurant
Requirements	
Development Risks	The process needs to insure that users will be able to decline a restaurant and move to the next restaurant.
Pre-conditions	User must have an existing user profile and restaurant must be existing in Yelp API
Post-conditions	User train model

Table 4: Typical Course of Action

Seq#	Actor's Action	System's Response
1	Trainer swipes left	Restaurant image will be swiped to the left and the "x" button will bounce and restaurant will be removed from restaurant array

Table 5: Alternate Course of Action

Seq#	Actor's Action	System's Response
1	Trainer clicks the "X" button	Restaurant image will be swiped to the left and the "X" button will bounce and restaurant will be removed from restaurant array

Table 6: Exceptional Course of Action

Seq#	Actor's Action	System's Response
1	Click on Restaurant Image	Restaurant image shifts up and restaurant details such as cost and stars will appear
2	Click on "X" button	Restaurant image with details gets shifted to left and restaurant is removed

Identifier	Go to restaurant NOW using Map application
Purpose	Allow user to direct themselves to restaurant immediately
Requirements	
Development Risks	Process needs to allow users to get directions from their current location to get to their desired choice of restaurant
Pre-conditions	User must already have existing user profile, restaurant must be existing restaurant in yelp API, Google Maps Integration
Post-conditions	User train model

Table 4: Typical Course of Action

Seq#	Actor's Action	System's Response
1	Trainer clicks map pin icon	Device will provide a pop up giving user a message: "this will open up maps" with "okay" or "cancel" button
2	Trainer clicks "okay" button	System redirects to Google Maps application

Table 5: Alternate Course of Action

Seq#	Actor's Action	System's Response
1		

Table 6: Exceptional Course of Action

Seq#	Actor's Action	System's Response
1	Trainer clicks map pin icon	Device will provide a pop up giving user a message: "this will open up maps" with "okay" or "cancel" button
2	Trainer clicks "cancel" button	System will go back to regular page with all 3 available actions: decline, favorite, or go now.

2.1.4 Modes of Operation

Testing mode: This mode is a beta mode that can be used by testers. It will allow testers to use the application without having to create a user login.

2.2 System Analysis Rationale

Since our aim is towards a larger audience of those with a larger age gap which includes non-technical individuals, our design will need to be extremely simple and easy to use. We aim to create an application that draws in users through noticeable application design and simple instructions.

3. Technology-Independent Model

3.1 Design Overview

3.1.1 System Structure

<<Conceptual Domain Model>>

Figure 4: Conceptual Domain Model

<<Hardware Component Class Diagram>>

Figure 5: Hardware Component Class Diagram

<<Software Component Class Diagram>>

Figure 6: Software Component Class Diagram

<<Deployment Diagram>>

Figure 7: Deployment Diagram

<<Optional: Supporting Software Infrastructure Diagram>>

Figure 8: Supporting Software Component Class Diagram

Table 7: Hardware Component Description

Hardware Component	Description
Computer	For Developing App

Android Device	Testing

Table 8: Software Component Description

Software Component	Description
Android Studio	Main IDE for development

Table 9: Supporting Software Component Description

Support Software Component	Description
Google Maps	Directions to restaurant
Yelp	Restaurants, Price, Distance, Pictures

3.1.2 Design Classes

3.1.2.1 <Classes n>

<<Design Classes Class Diagram>>

Figure 9: Design Class Diagram

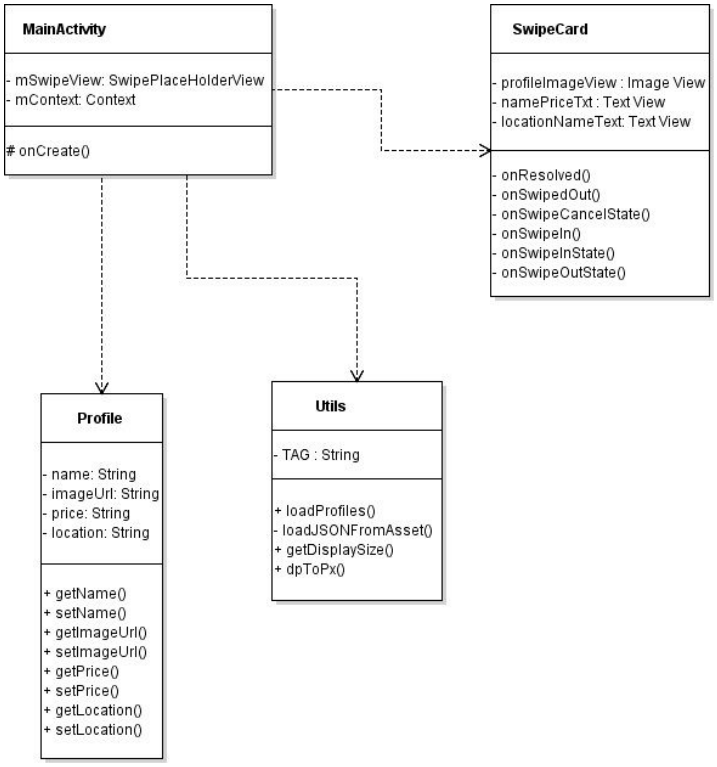


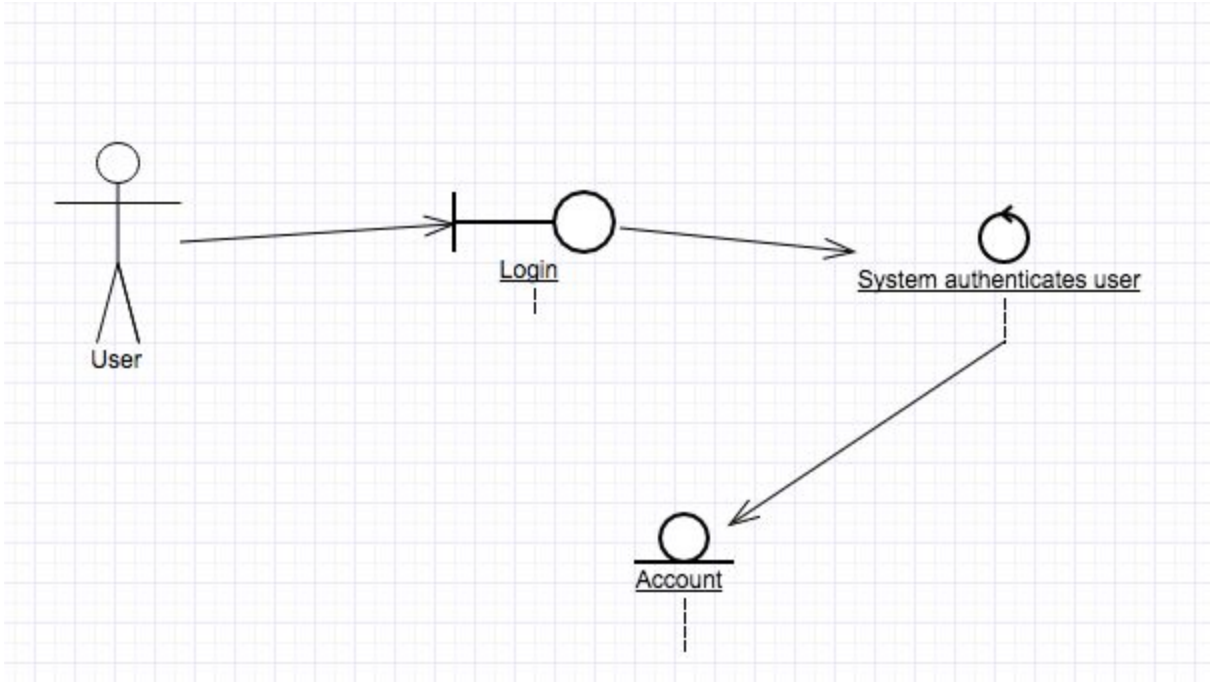
Table 10: Design Class Description

Class	Type	Description
MainActivity	Activity	Runs main functions of app
SwipeCard	Functions	Swipe Functionality
Profile	Attributes	User profile data
Utils	Functions	Methods used by maid activity

3.1.3 Process Realization

<<Robustness Diagram>>

Figure 10: Robustness Diagram



<<Sequence Diagram>>

Figure 11: Sequence Diagram

3.2 Design Rationale

This type of architecture/design was chosen for this application because we wanted an app that functions in a similar way to the popular Tinder application. We wanted to keep the same swiping actions and make the application make sense for restaurant use.

4. Technology-Specific System Design

4.1 Design Overview

4.1.1 System Structure

<<Hardware Component Class Diagram>>

Figure 12: Hardware Component Class Diagram

<<Software Component Class Diagram>>

Figure 13: Software Component Class Diagram

<<Deployment Diagram>>

Figure 14: Deployment Diagram

Table 11: Hardware Component Description

Hardware Component	Description
Laptops	Used for programming the app
Android Phones	Used to test the app

Table 12: Software Component Description

Software Component	Description
Android Studio	Used to program the app

Table 13: Supporting Software Component Description

Support Software Component	Description
Google Maps	Used to help locate the restaurant
Facebook/Google API	Used to help authenticate the user
Yelp API	Used to help search for restaurants

4.1.3 Process Realization

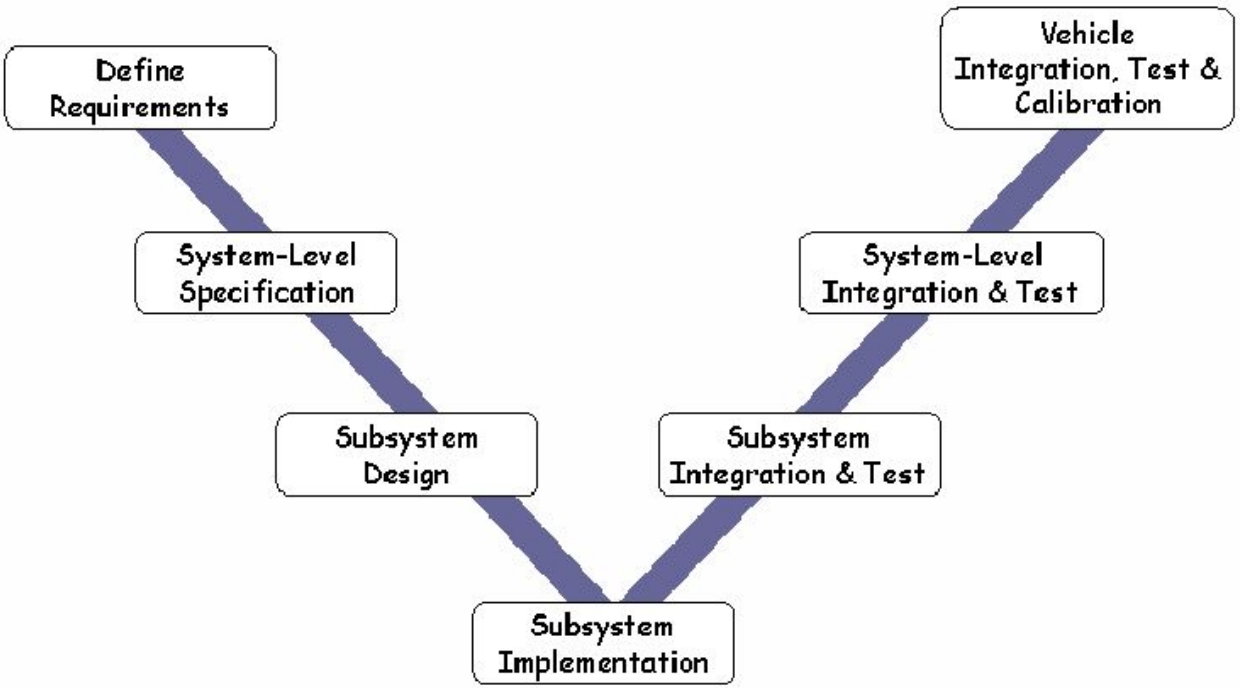


Figure 17: Process Realization Diagram

4.2 Design Rationale

5. Architectural Styles, Patterns and Frameworks

Table 14: Architectural Styles, Patterns, and Frameworks

Name	Description	Benefits, Costs, and Limitations
Java	Programming language	Easy to use, Free, Speed
Firebase	Database	Free from Google