Assist Robot

Phase I

Project Report

Project Team – 8

Team Members

Priyadarsini Nidadavolu(17)

Deepthi Priyadarshini Penmetsa(22)

Dheeraja Vallabhaneni(28)

Tej Kumar Yentrapragada(33)

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1. Introduction:

The main goal of the project is to help people in finding their misplaced objects. Basically humans have a tendency to forget their belongings somewhere in their house and search for it for hours together. For example, if I have an important business meeting to attend, but I don't remember where I placed my car keys, then I will be in huge loss. So to prevail in these circumstances here comes our Friendly Robot- My Friend which could assist me in keeping track of my personal things. So what this robot will do is that it will have entire map (laser scan) of the building and objects in the building in its memory. So we will feed the robot with the objects that are highly important to us, like car keys, some files, phone and laptop. This robot will keep its eye on these objects and notify their location to its master upon request.

2. Project Goal and Objectives:

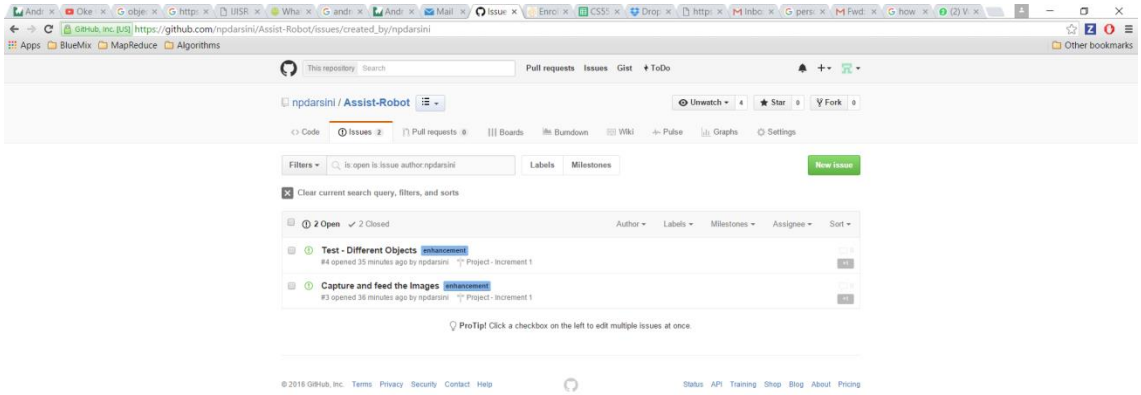
The primary goals of our project is described below:

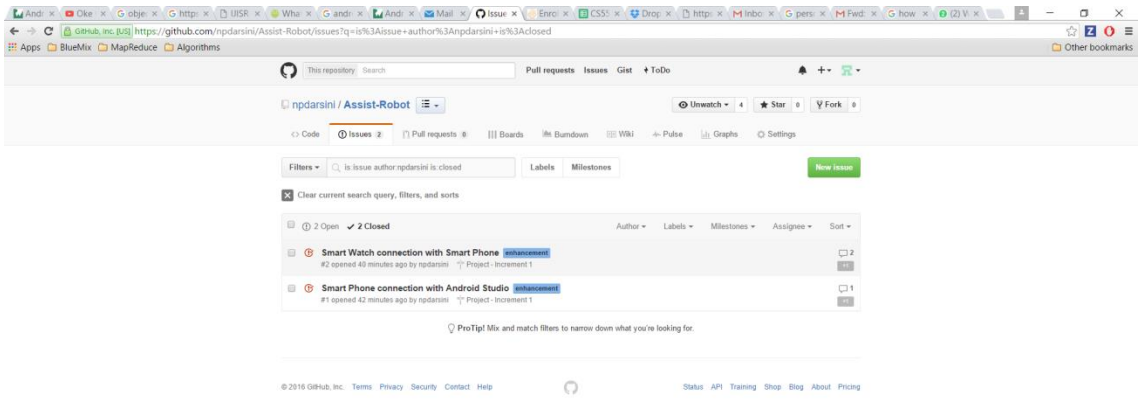
- To implement a module which has an interaction with robot. Eg: You can ask few questions to the robot and the Robot will be responding to you back. You can ask the robot about your misplaced phone. So that it will answer you after it had found the phone.
- To make the robot learn about the personal items like laptops, phones, watch, keys etc.
- To design a robot which can find the learned objects that are misplaced in a building.
- To send a notification to your smart watch when it finds the lost object.
- To remind the user about his day to day events that were previously taught.
- To make the robot act as an assistant in getting things specified by the user. (Mr Robot – Get me my phone).
- To make a single robot act as assistant to all the people living in same house. It recognizes the user first and then assists that particular user in finding the belongings.

3. Project Plan:

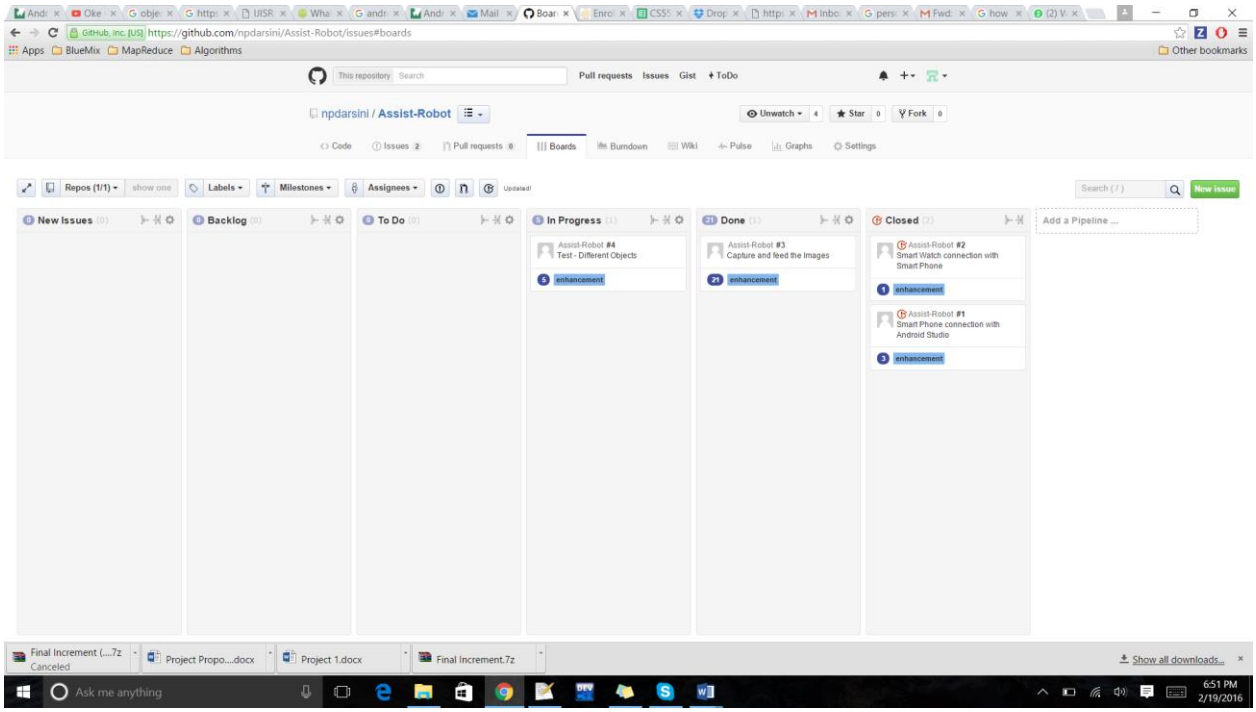
3.1 Schedule:

Stories: Four user stories had been created as part of Iteration 1. Here are the snapshots for the stories which are in closed and opened state.

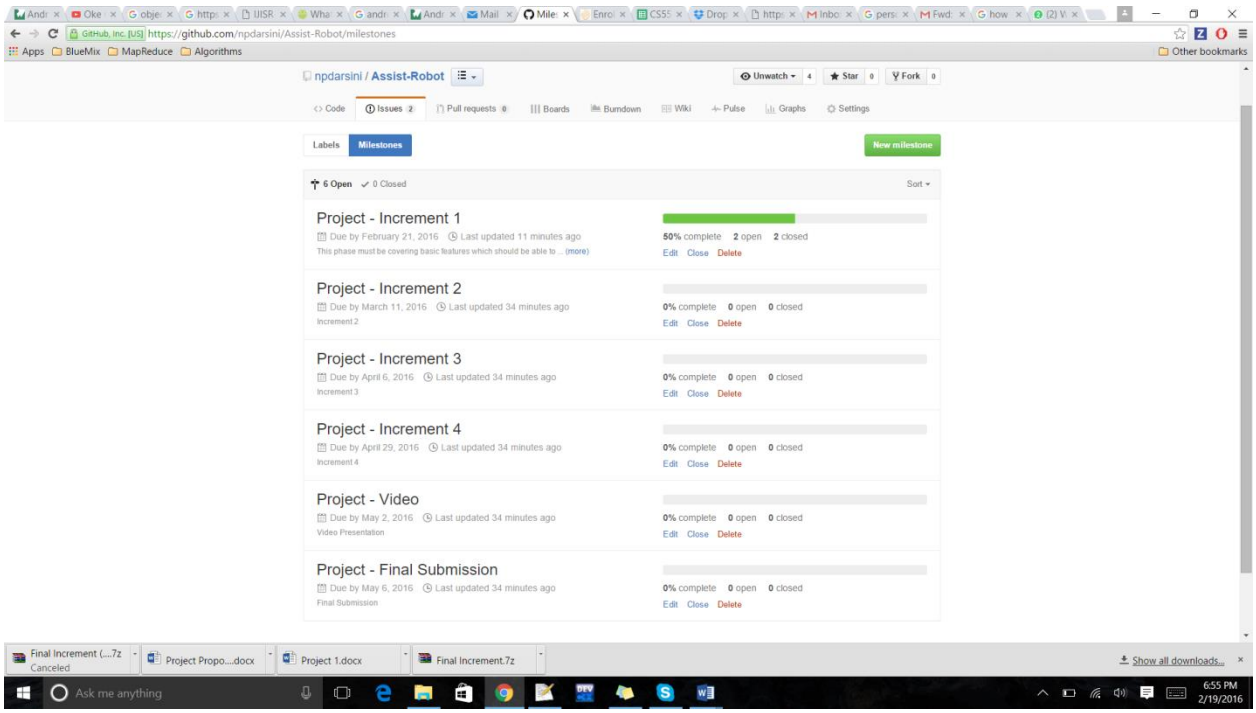




Board:

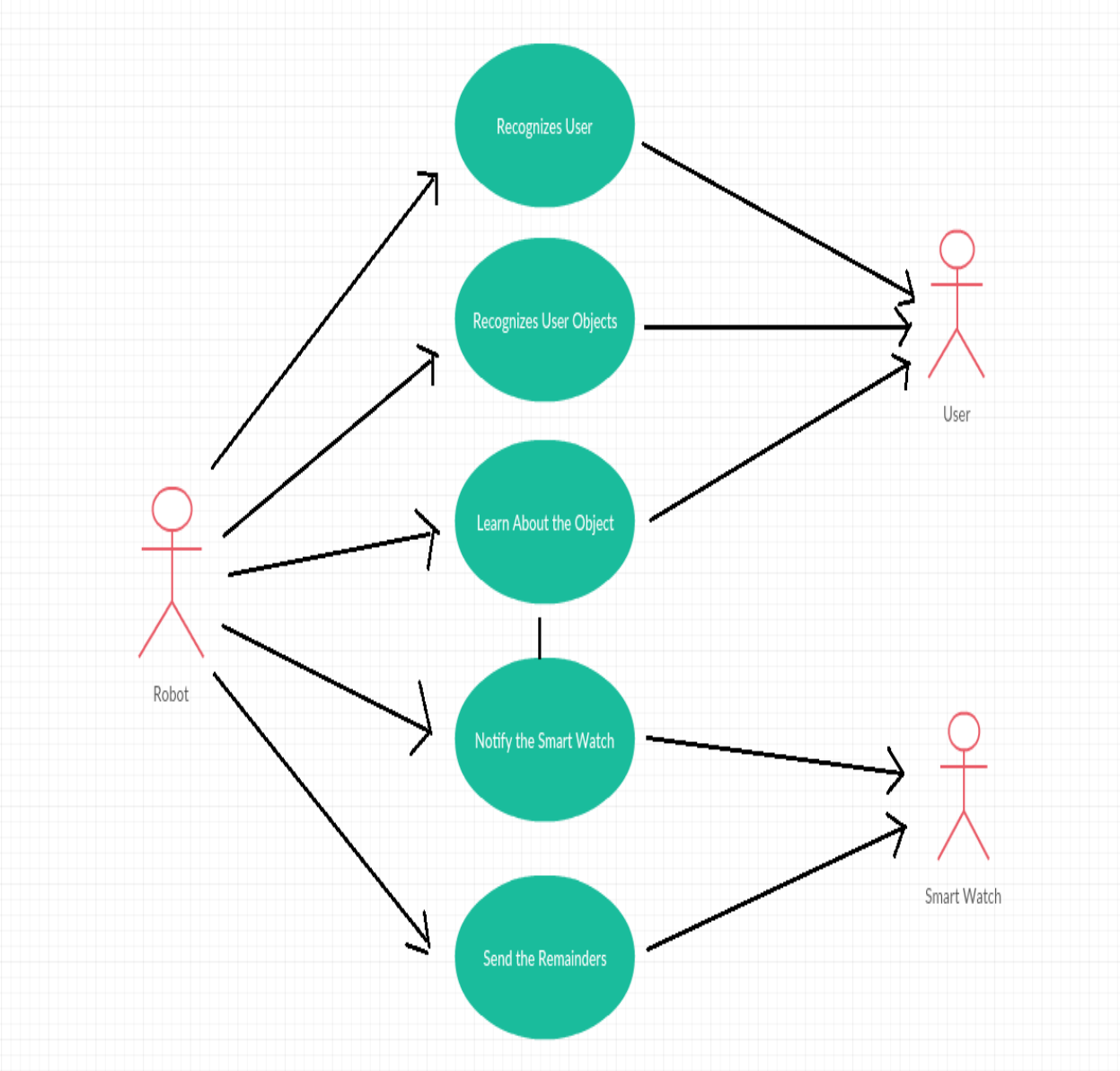


Milestones:

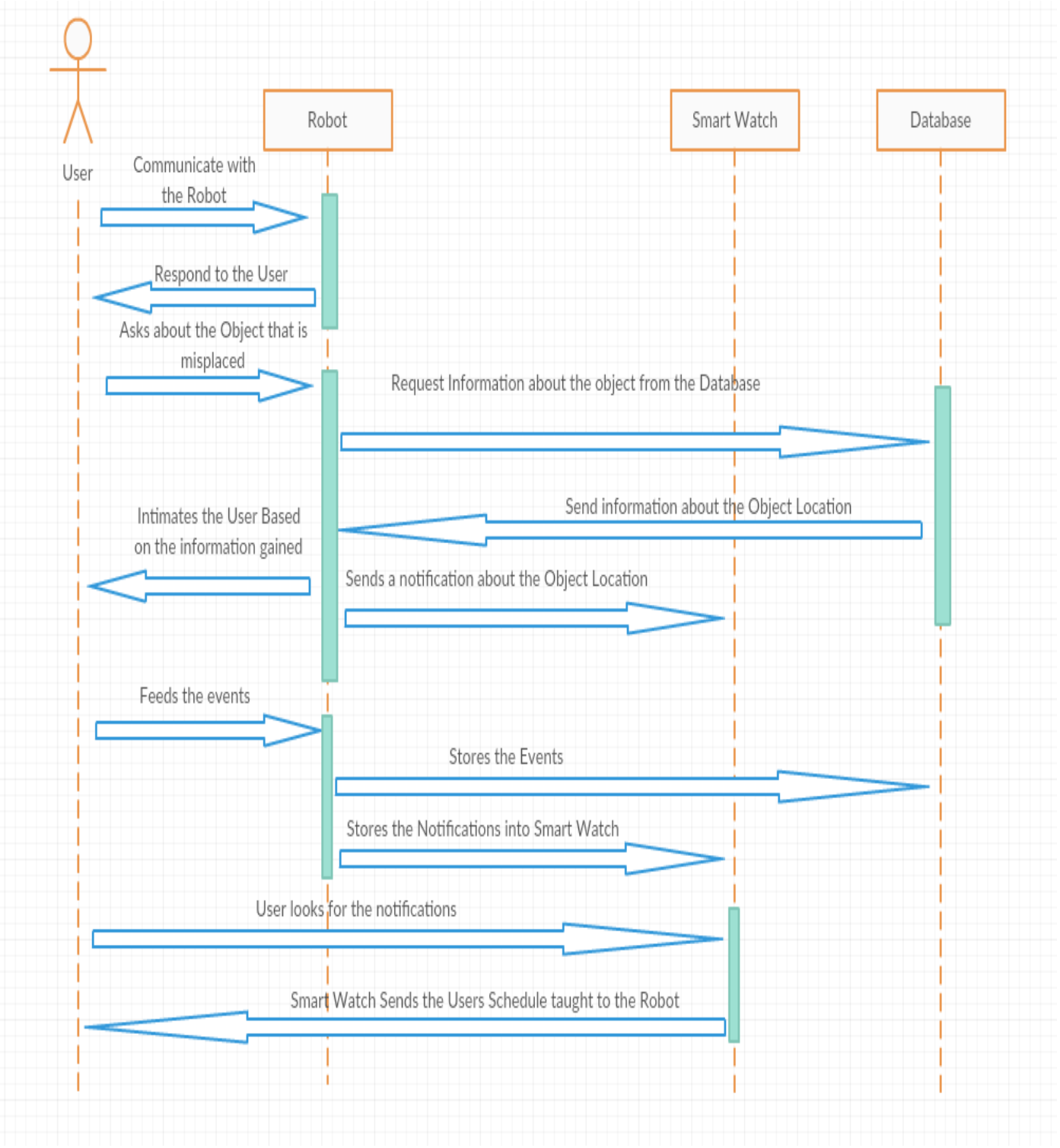


3.1.1 UML Diagrams:

Use Case Diagram



Sequence Diagram:



3.2 Project Timelines:

Increment	Deadline
Increment 1	19 February 2015
Increment 2	11 March 2016
Increment 3	6 April 2016
Increment 4	29 April 2016
Final Submission	6 May 2016

3.2.1 Team Members:

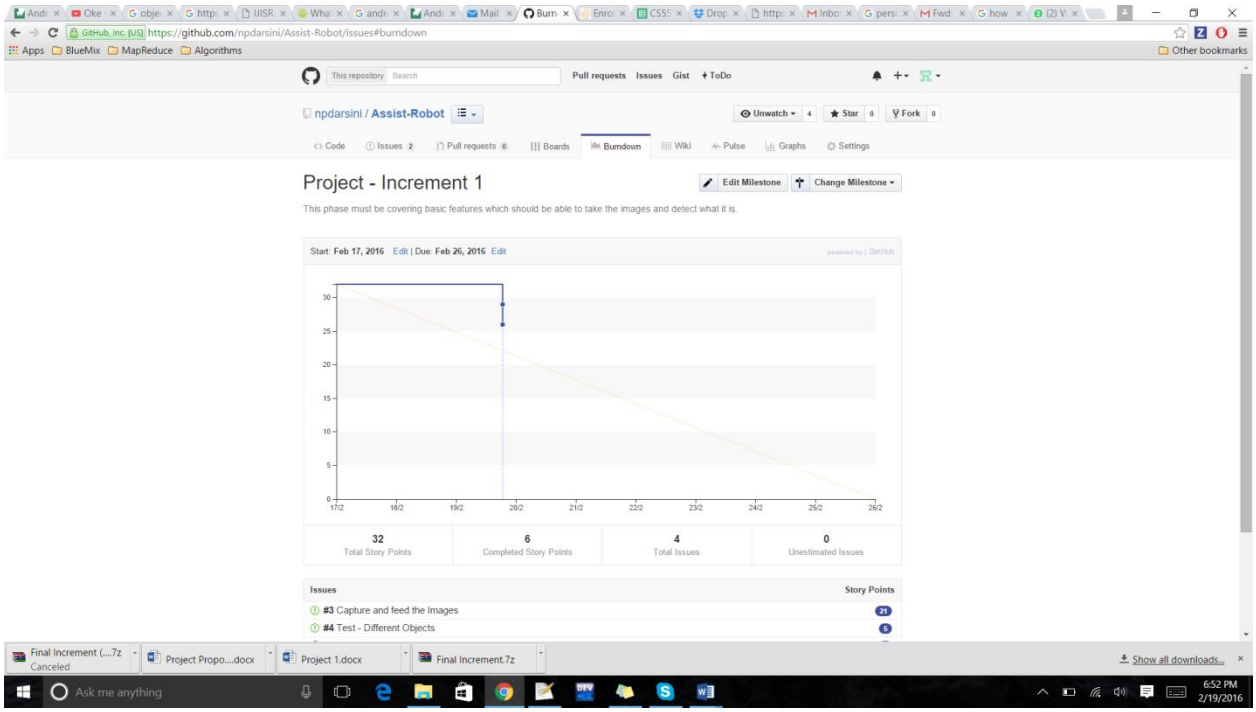
1. Priyadarsini Nidadavolu – 17
2. Deepthi Priyadarshini Penmetsa – 22
3. Dheeraja Vallabhaneni – 28
4. Tej Kumar Yentrapragada – 33

3.2.2 Tasks and Responsibilities:

- **Machine Learning and R Programming –** Deepthi Priyadarshini Penmetsa
- **Spark and Hadoop Technologies –** Priyadarsini Nidadavolu
- **Objective C and IOS Programming –** Tej Kumar Yentrapragada
- **Android Programming -** Dheeraja Vallabhaneni

3.3 Burndown Chart:

Burndown:



4. First Increment Report

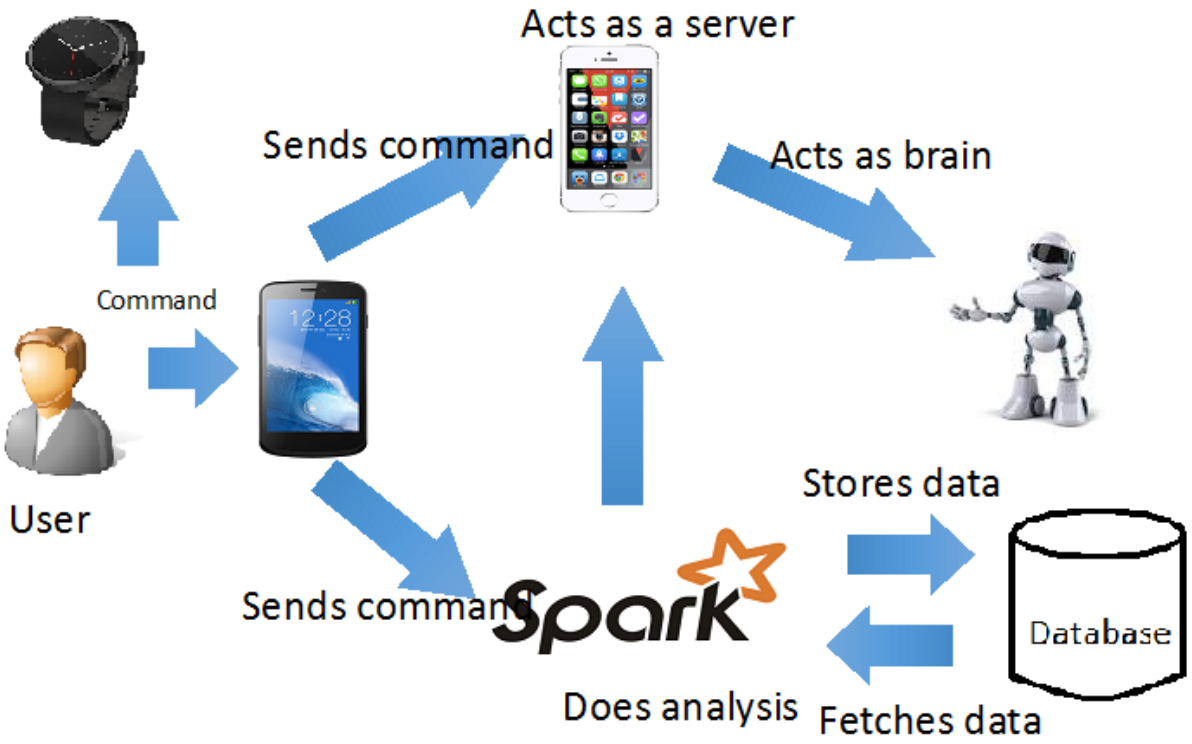
4.1 Existing API:

IBM Alchemy API

This API basically performs machine learning and natural language processing techniques. Some of its features include semantic text analysis, sentimental analysis, deep learning, face detection and reorganization, speech to text and vice versa conversions etc. In this we had used this API in order to recognize the objects that we want to teach the Robot.

Achievements upon using this API – The Robot could identify basic objects like laptop, phone, bottle etc.

4.2 Design of Features:



The architecture of our system could be like the user can give commands to the client device which is android phone. Further the Iphone which acts as a server could take commands from the android phone and passes it to the Robot. The Robot performs the necessary actions of the received command and return back to the Android Phone. It also sends the notifications to the Android Smart Watch. The Android device can also pass the command to the Spark and fetch the data from the database (MongoDB, Hadoop DB).

System Features

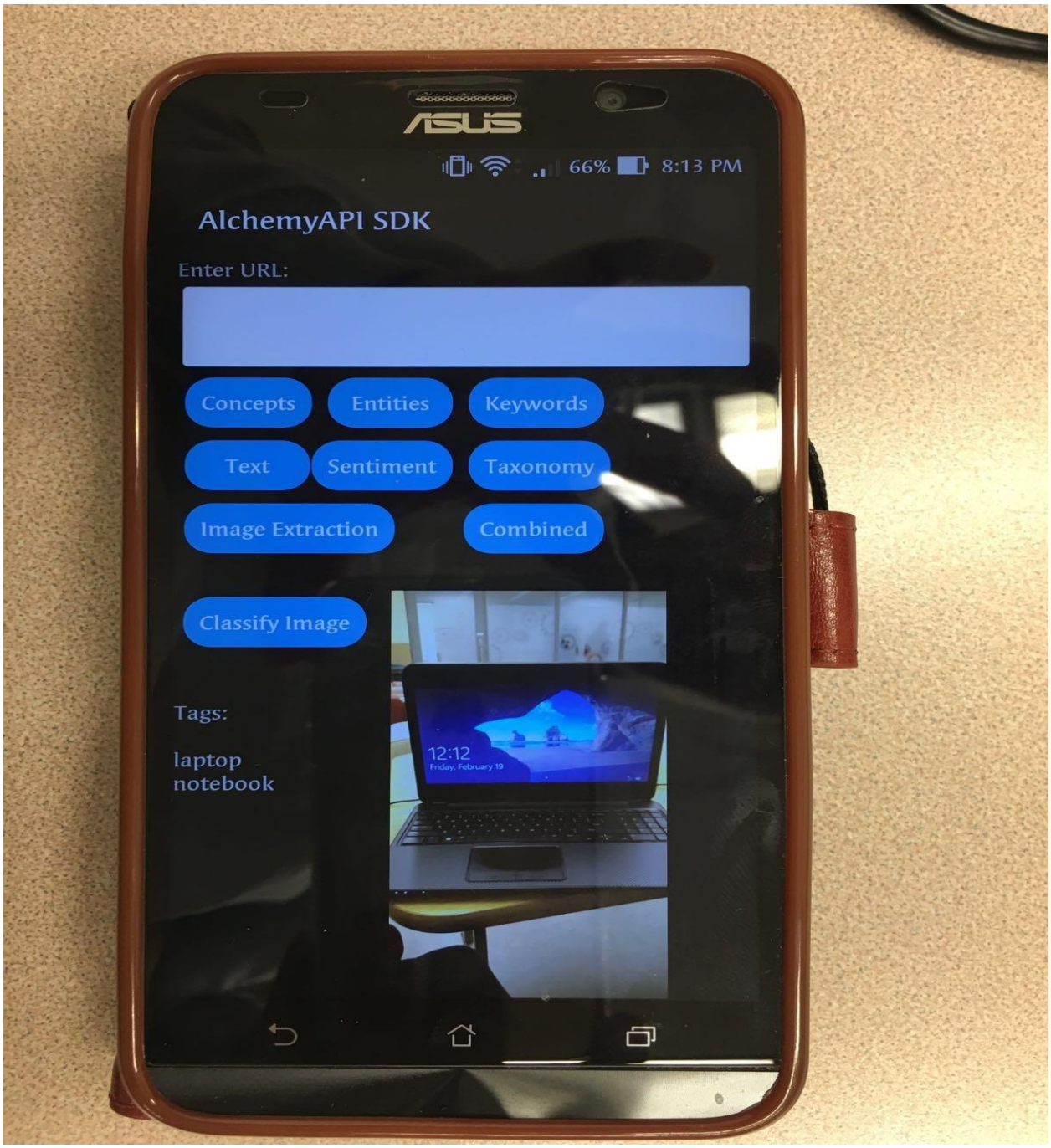
These are the following features we developed as part of this phase:

We had used IBM's Alchemy API and able to make our Robot to detect the object and return the object name as a result.

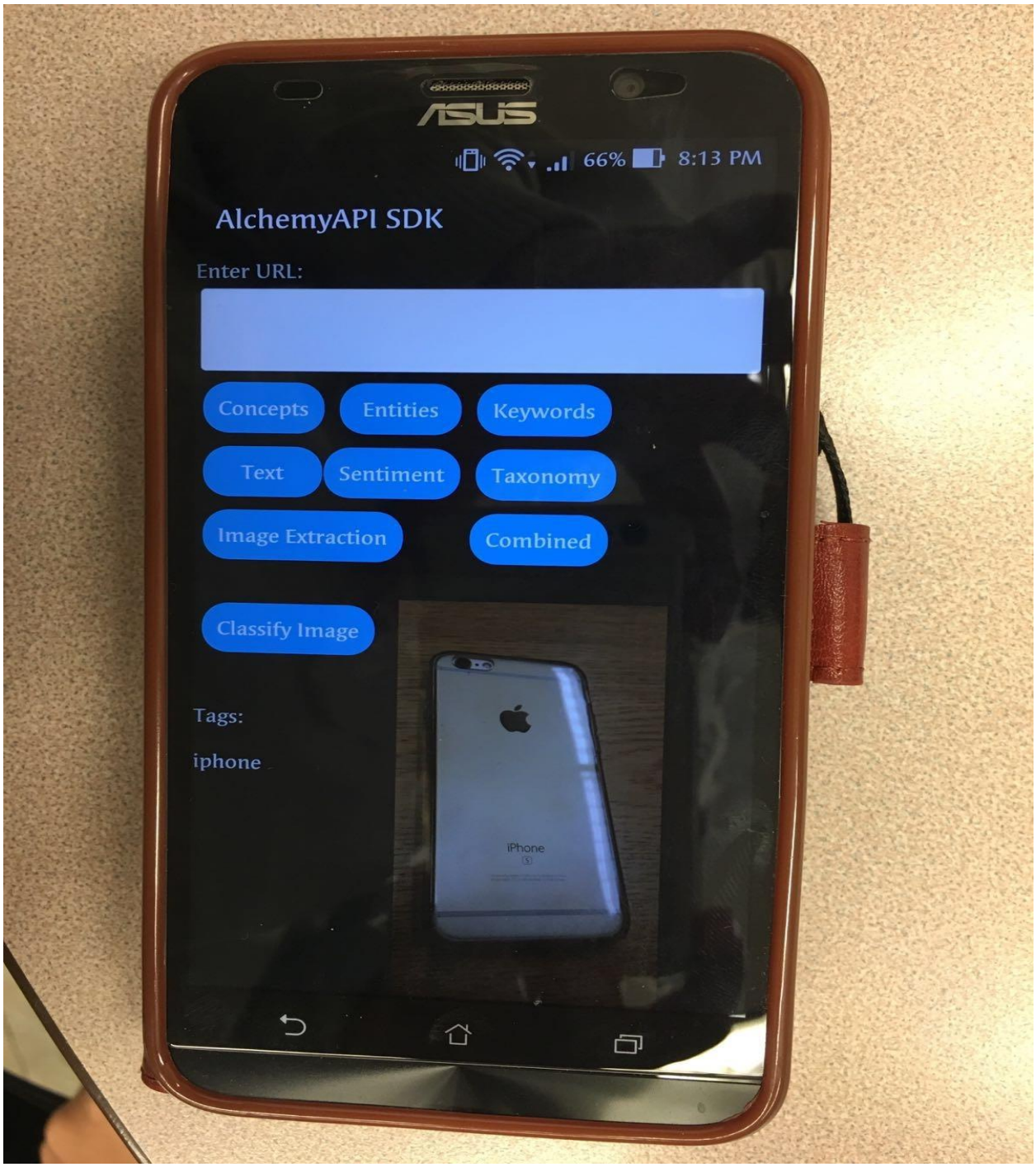
4.3 Implementation:

Mobile Client Implementation – Snapshots

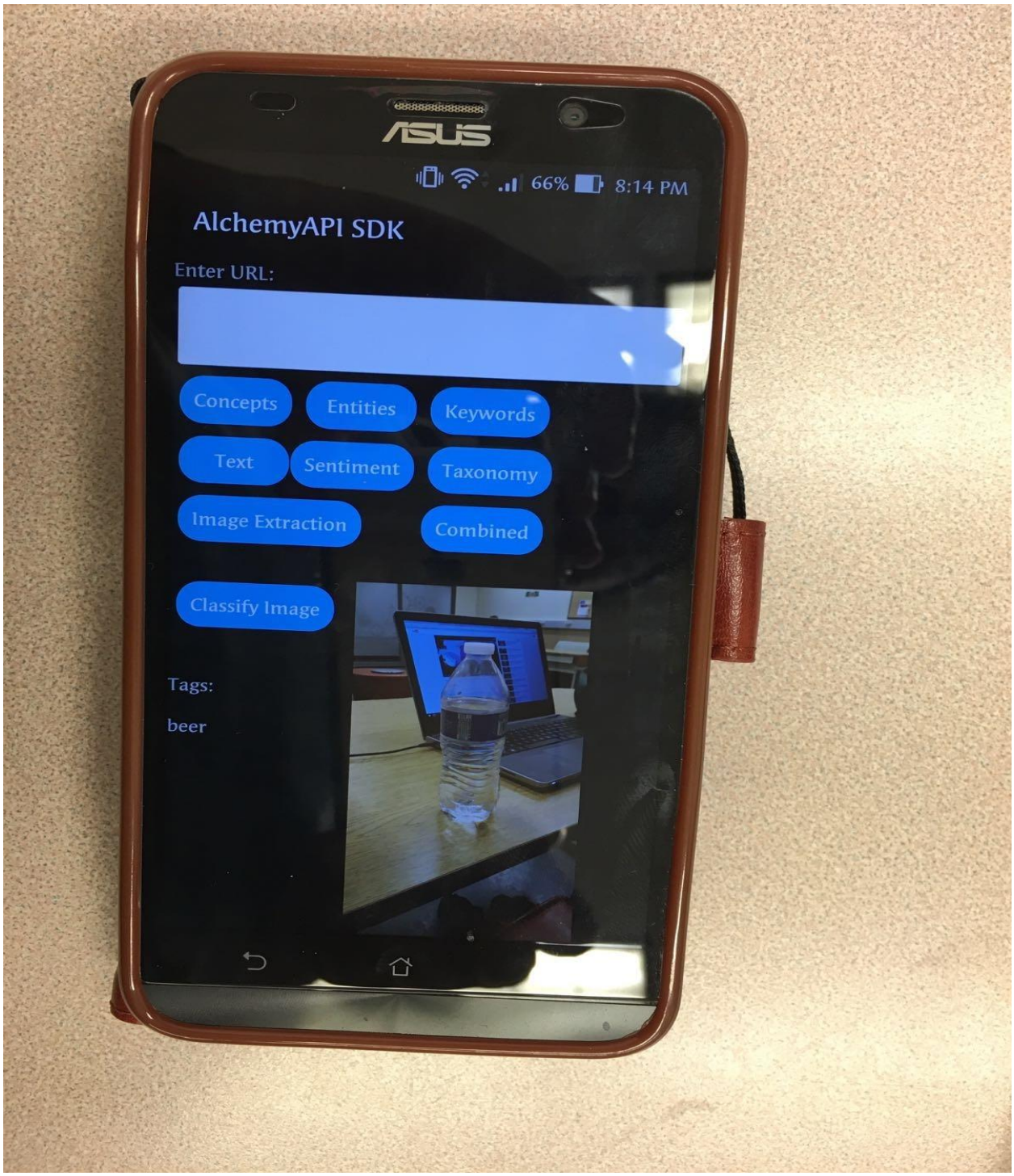
This snapshot shows us that the application is able to identify the object and names its Laptop.



This snapshot shows us that the application is able to identify the object and names it as an Iphone.



This snapshot shows us that the application is able to identify the bottle.



4.4 Deployment:

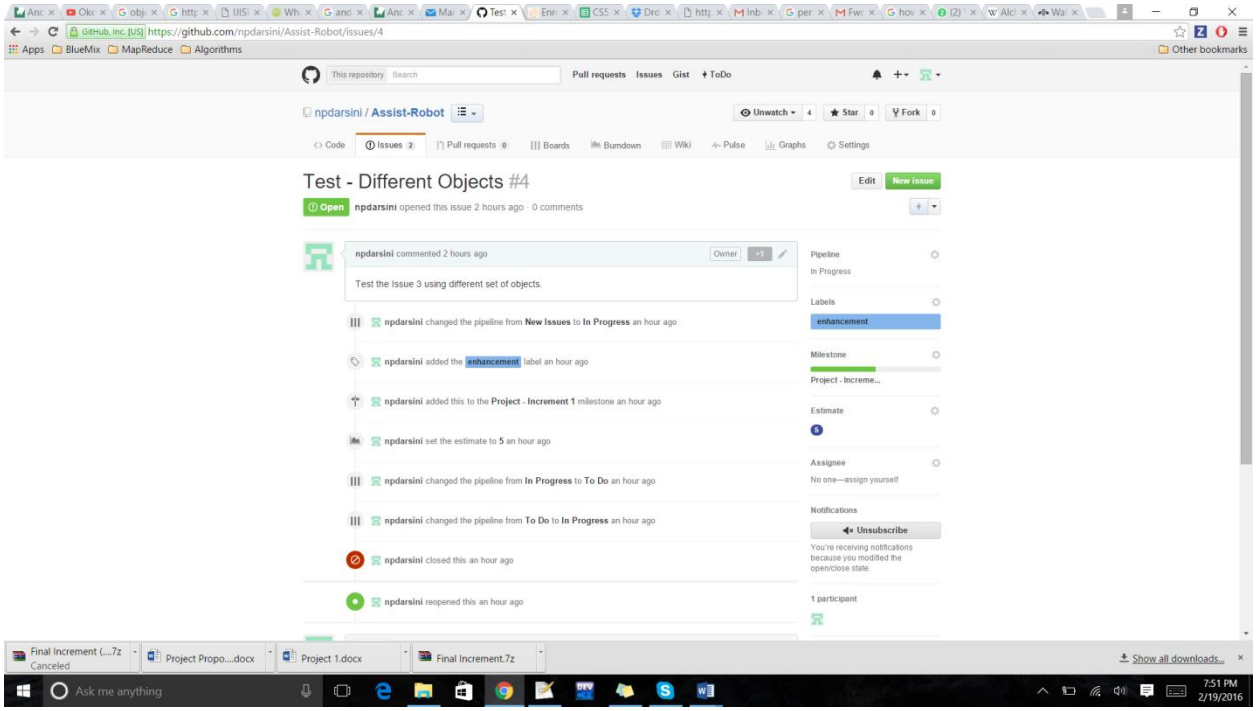
Git Hub Link:

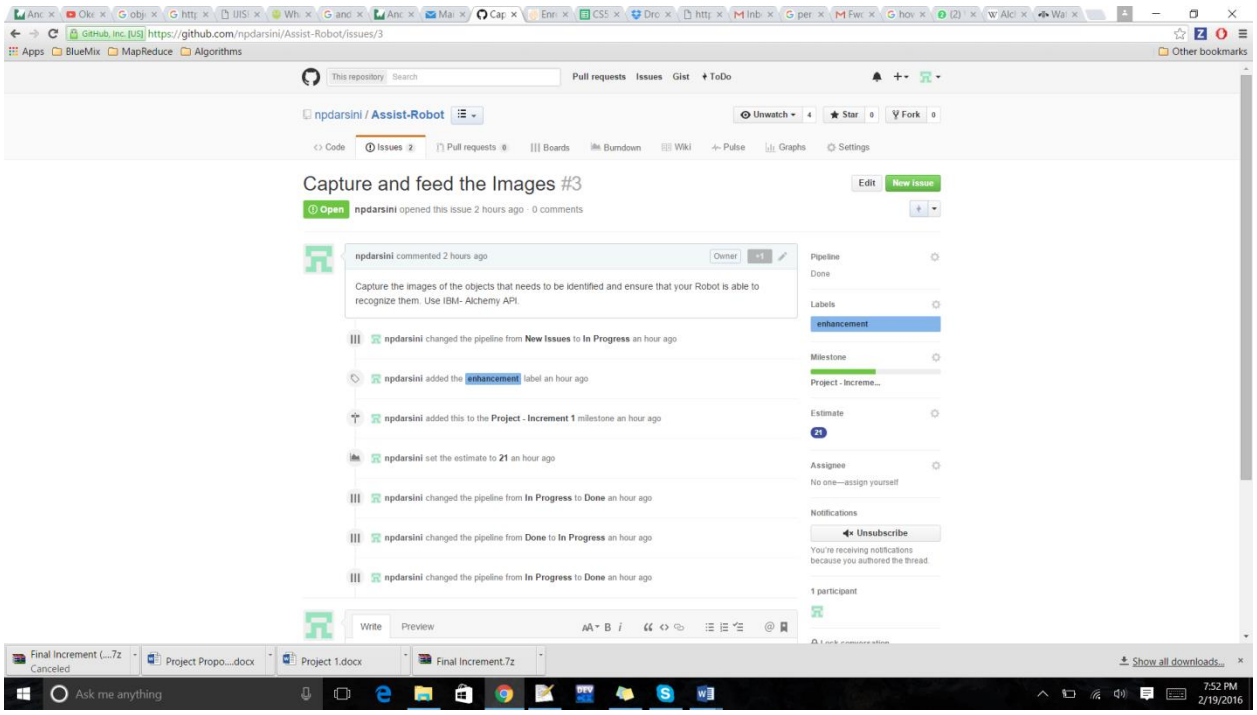
https://github.com/npdarsini/Assist-Robot

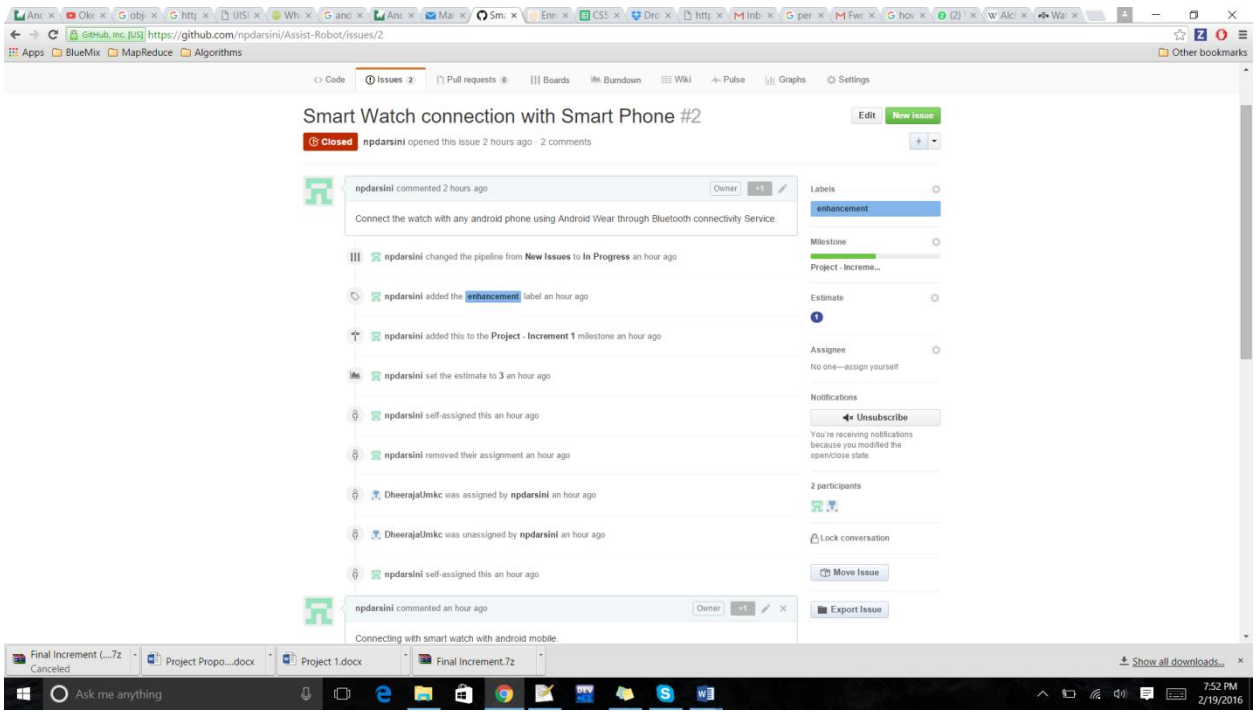
5. Project Management:

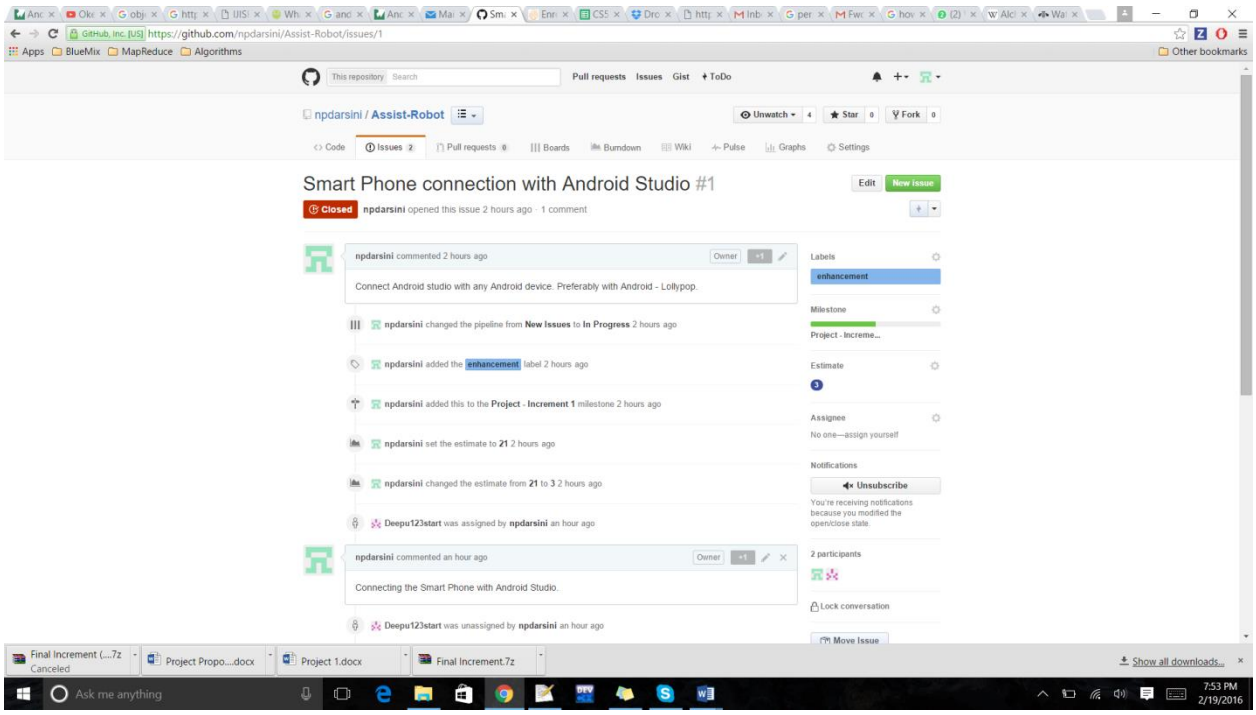
5.1 Implementation status report:

20% implementation has been implemented. This phase involves the basic object identification that is required for finding and location the objects. The team members has an equal contribution towards the development and it took around 2 complete days to give an outlook for this phase.




https://github.com/npdarsini/Assist-Robot/issues/3
npdarsini / Assist-Robot
Capture and feed the Images #3
Open
npdarsini opened this issue 2 hours ago · 0 comments
Capture the images of the objects that needs to be identified and ensure that your Robot is able to recognize them. Use IBM- Alchemy API.
npdarsini changed the pipeline from New Issues to In Progress an hour ago
npdarsini added the enhancement label an hour ago
npdarsini added this to the Project - Increment 1 milestone an hour ago
npdarsini set the estimate to 21 an hour ago
npdarsini changed the pipeline from In Progress to Done an hour ago
npdarsini changed the pipeline from Done to In Progress an hour ago
npdarsini changed the pipeline from In Progress to Done an hour ago
Pipeline
Done
Labels
enhancement
Milestone
Project - Increme...
Estimate
21
Assignee
No one—assign yourself
Notifications
Unsubscribe
You're receiving notifications because you authored the thread.
1 participant


https://github.com/npdarsini/Assist-Robot/issues/2
Smart Watch connection with Smart Phone #2
Closed
npdarsini opened this issue 2 hours ago · 2 comments
Connect the watch with any android phone using Android Wear through Bluetooth connectivity Service.
npdarsini changed the pipeline from New Issues to In Progress an hour ago
npdarsini added the enhancement label an hour ago
npdarsini added this to the Project - Increment 1 milestone an hour ago
npdarsini set the estimate to 3 an hour ago
npdarsini self-assigned this an hour ago
npdarsini removed their assignment an hour ago
DheerajaUmkc was assigned by npdarsini an hour ago
DheerajaUmkc was unassigned by npdarsini an hour ago
npdarsini self-assigned this an hour ago
npdarsini commented an hour ago
Connecting with smart watch with android mobile.
Labels
enhancement
Milestone
Project - Increme...
Estimate
1
Assignee
No one—assign yourself
Notifications
Unsubscribe
You're receiving notifications because you modified the open/close state.
2 participants
Lock conversation
Move Issue
Export Issue



Bibliography:

Lab Tutorials and the material provided by Dr. Lee.