**Final Objective**

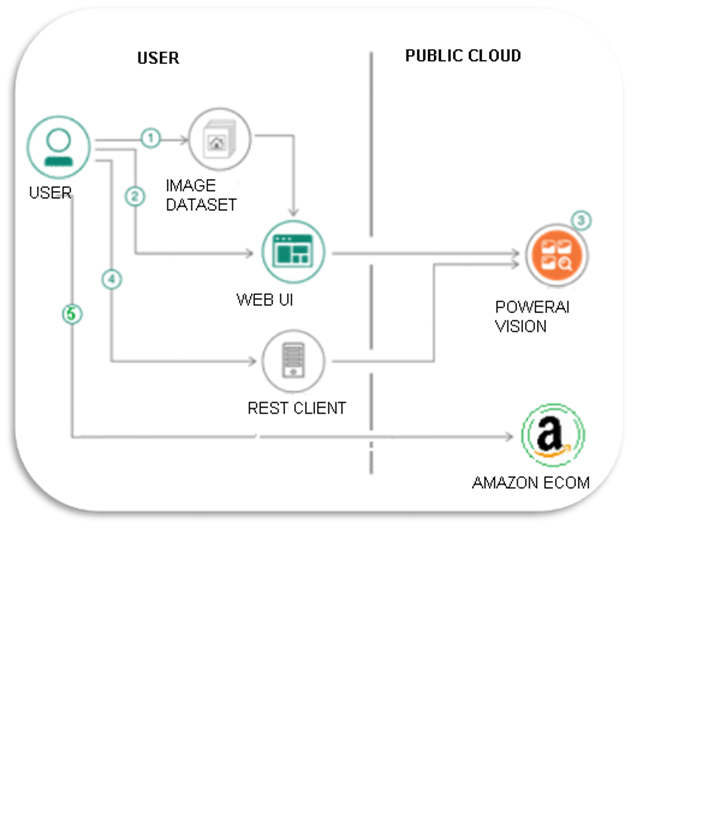
With the improvised objective, now user should also be getting recommended suggestions based on his accessories list.

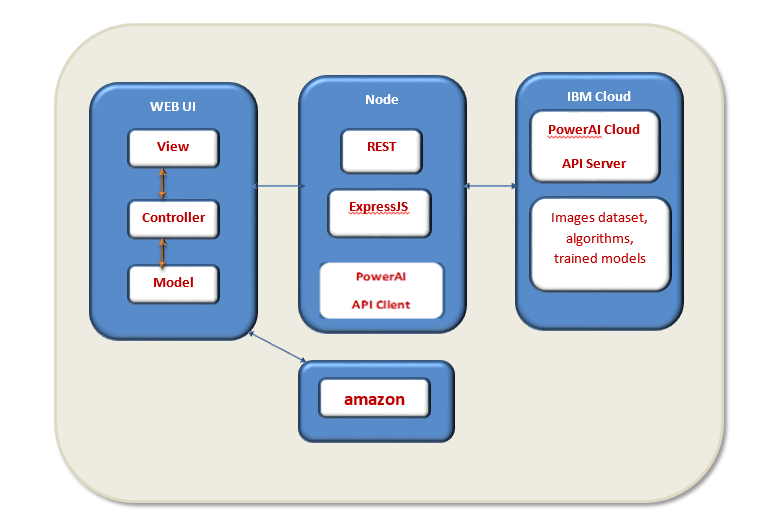
**Existing Services/REST API Used**

**Similar Recommended products**

This api we have used to find the similar products <http://webservices.amazon.com/onca/xml>? Service=AWSECommerceService& AWSAccessKeyId=[AWS Access Key ID]& AssociateTag=[Associate ID]& Operation=SimilarityLookup&ItemId=ASIN1,ASIN2,ASIN3& SimilarityType=Random &Timestamp=2018-04-23T22:12:44Z] We have to provide the AWSAccessKeyId, AssociateTag and list of ItemIds for which we are searching similar items. The same api is used to search for the recommended items for both phone and laptop. Just we have to change the item ids.

**Architechture Diagram**



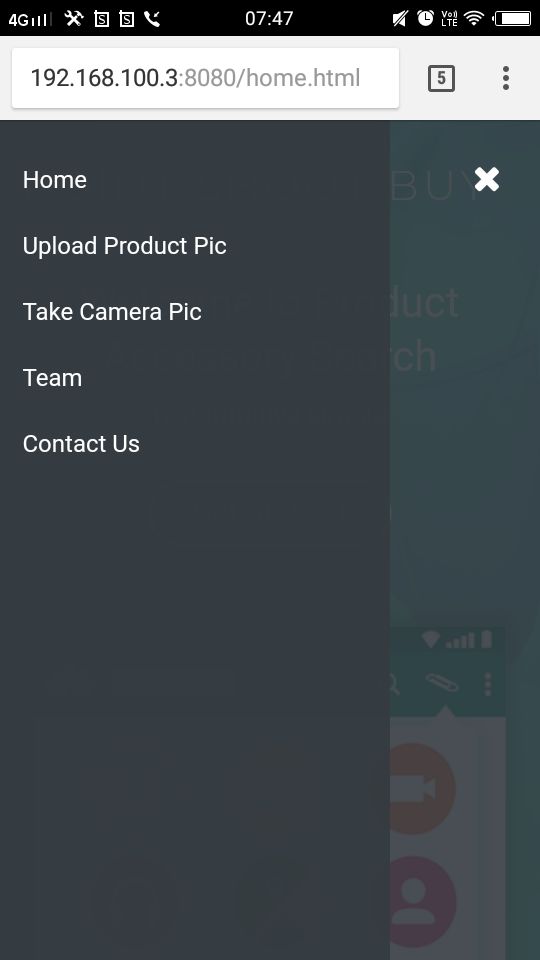


**Sequence Diagram**

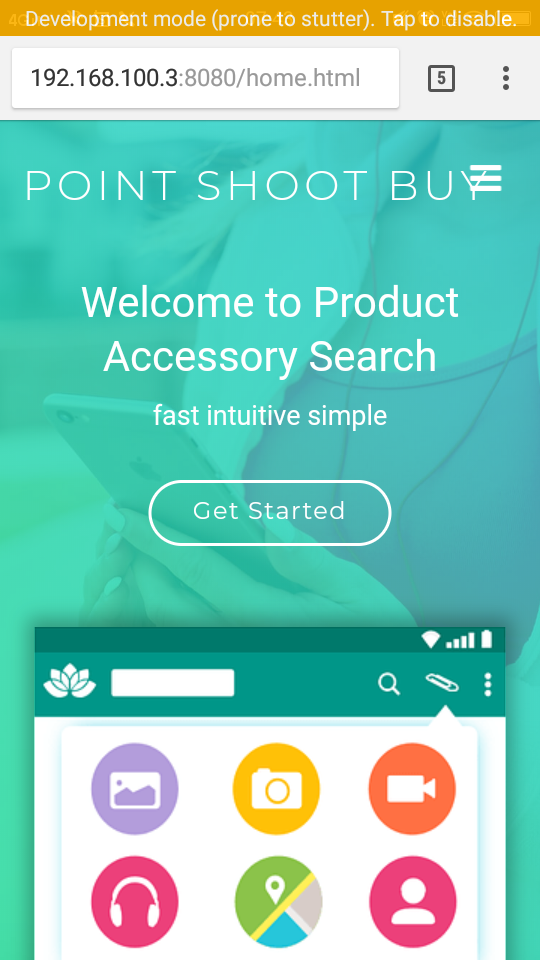


**Implementation:**

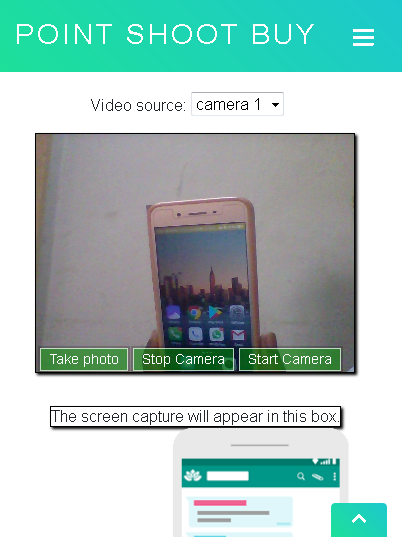
Host the product on the server and the home screen menu options looks like this on the side bar

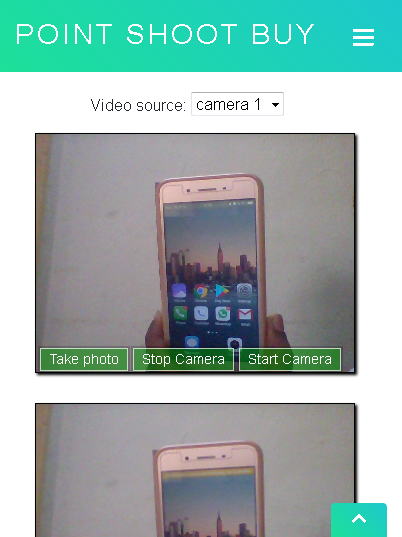


The home screen looks like this. We have cleaned the html page and now it looks better.

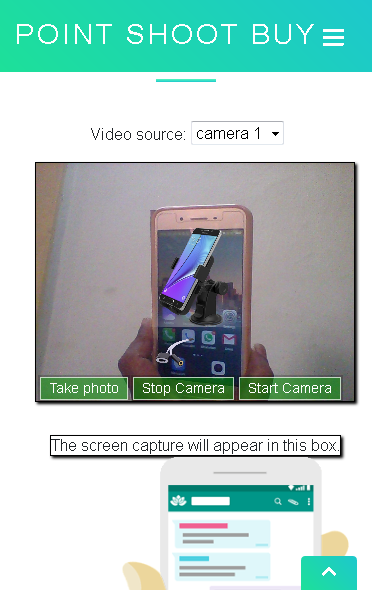


once we click on the open camera option, the browser opens camera and scans the objects

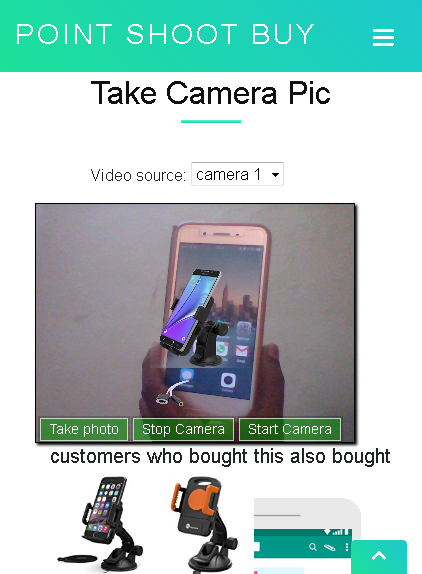


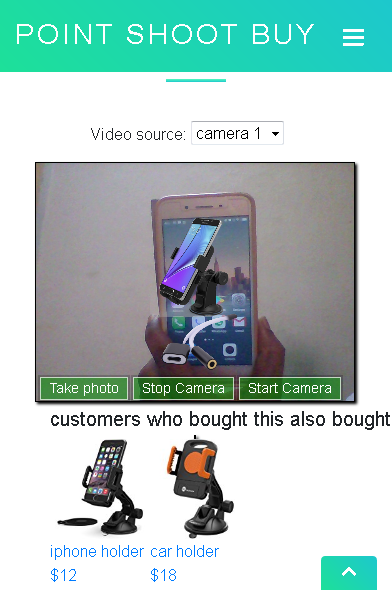


After that the object, here phone will be detected and its corresponding accessories will be displayed

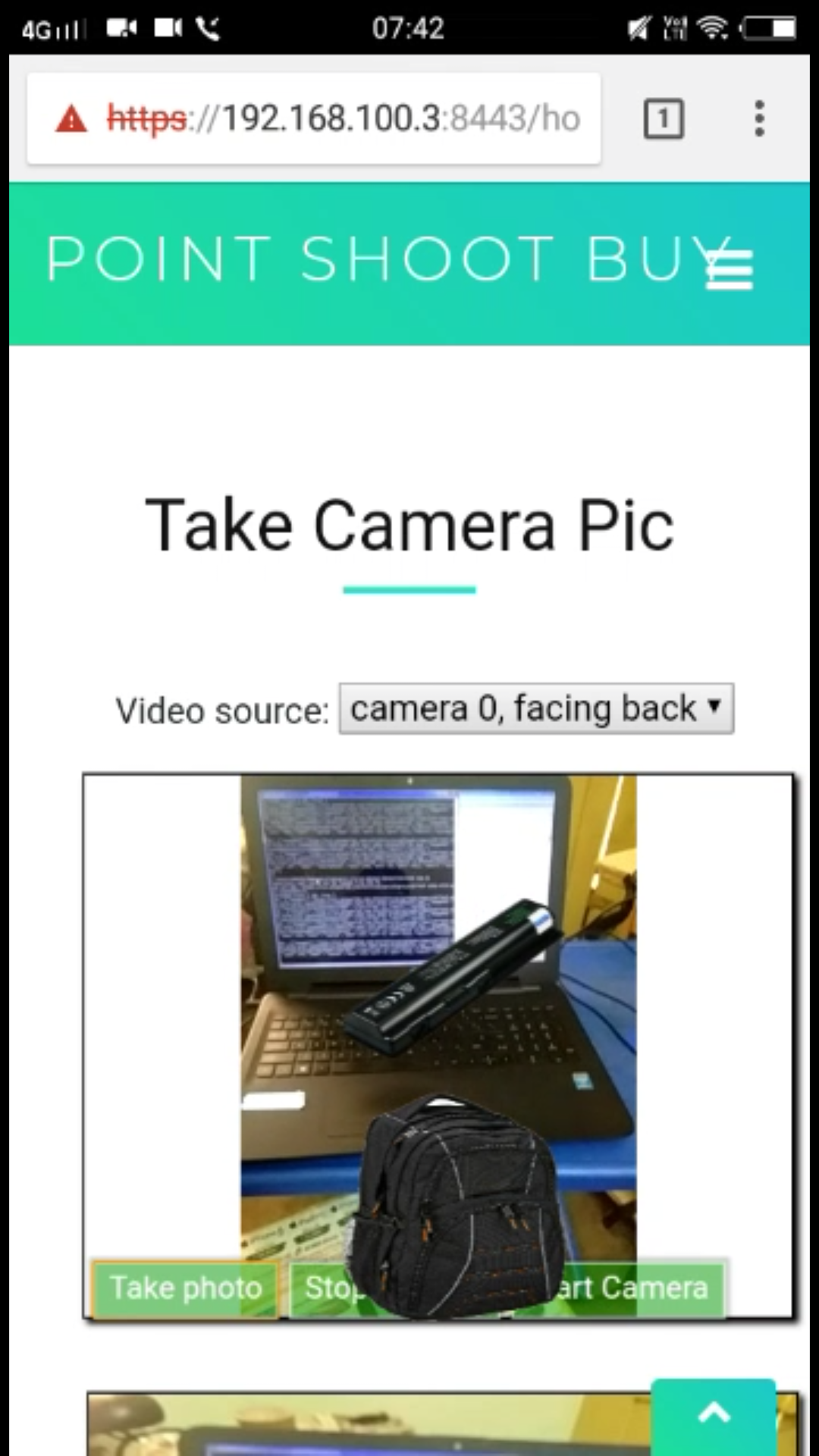


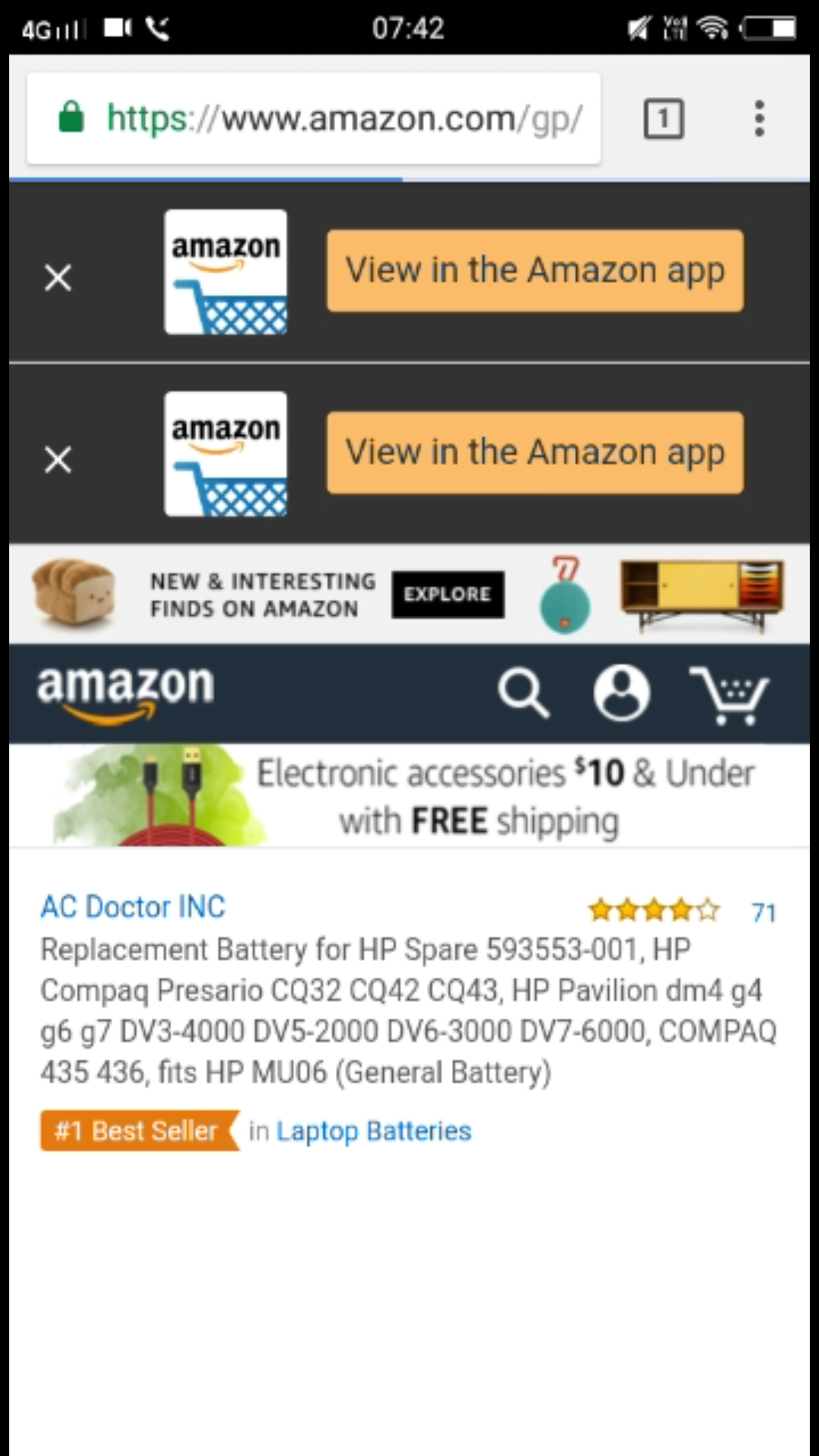
We are also displaying the recommended items. The UI screens of these recommended items are custom made. We make a rest call to amazon services and get the list of recommended items and their prices in the response. After that we add images and styles to that response and show in UI.



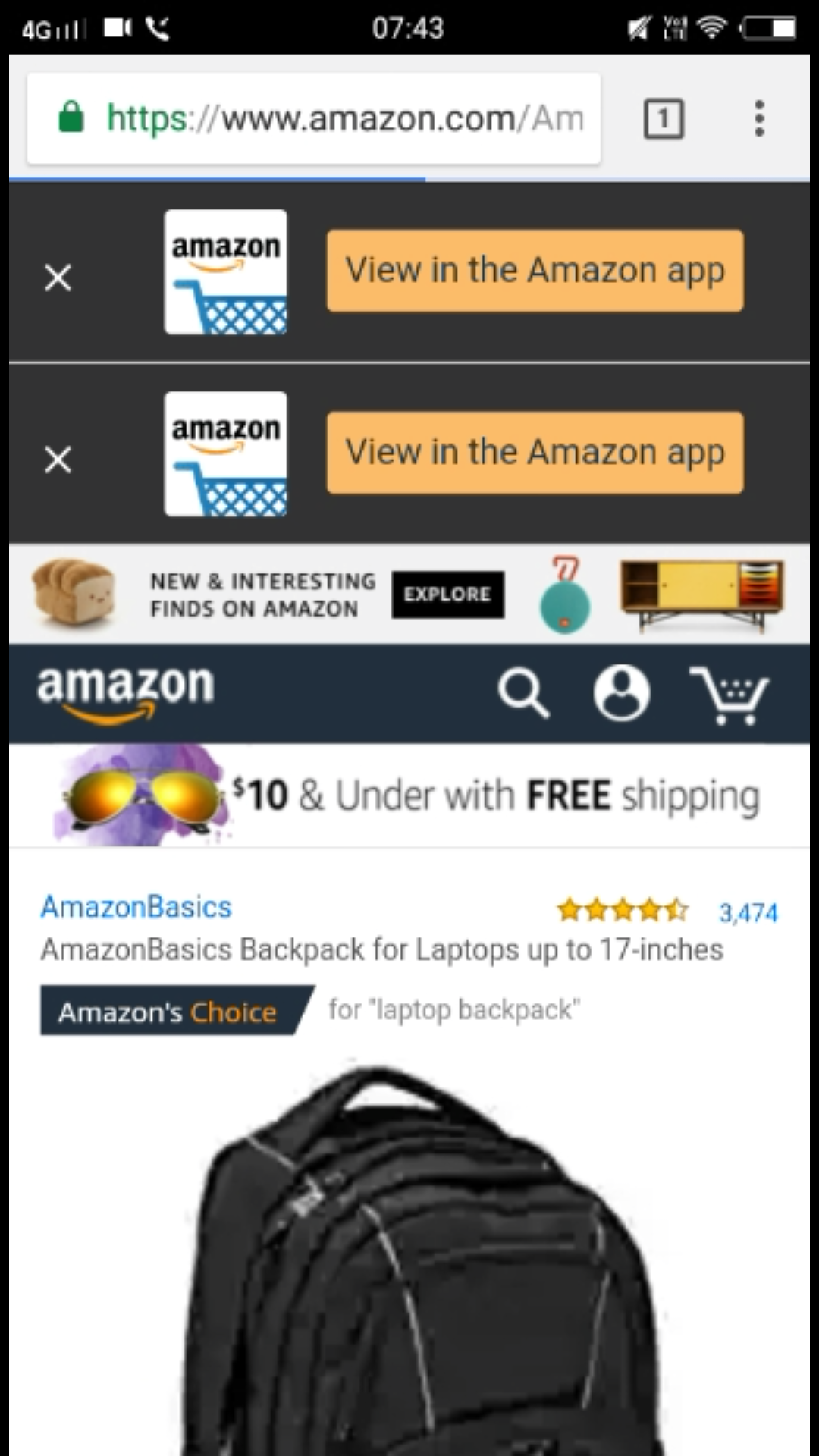


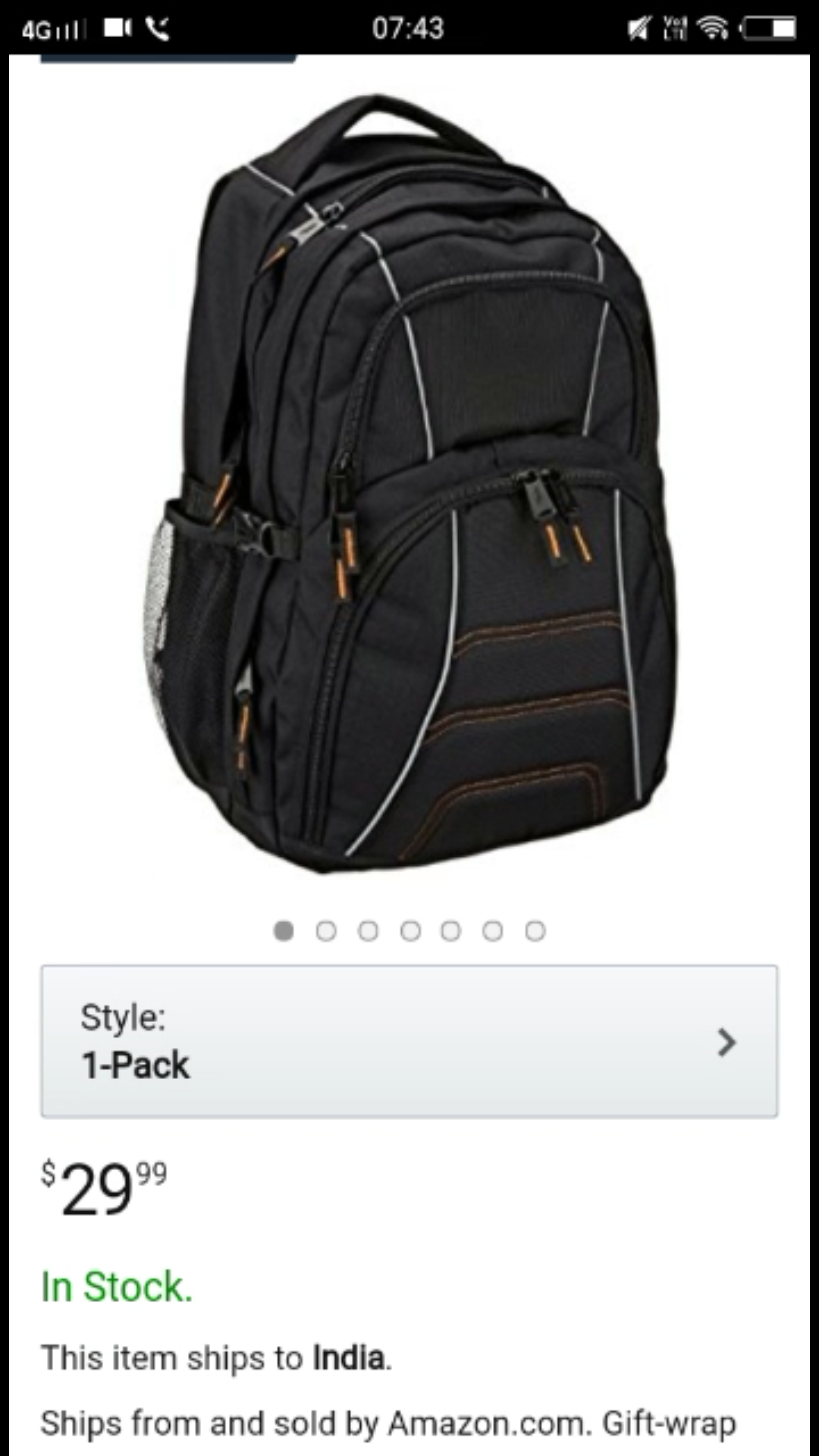
Similarly for laptop also:











**Testing:**

We did

1. integratiion testing
2. unit testing
3. tested all the feature flows

Object detection passed successfully amazon page redirection is success phone detection is success recommended objects are displayed successfully

**Deployment Steps:**

a. Machine Learning: ibm powervision api

Subscribe for ibm powervision api. IBM PowerAI Vision provides tools and interfaces for business analysts, subject matter experts, and developers without any skill in deep learning technologies to begin using deep learning. The tools assist user to focus on rapidly identifying datasets, labeling them, and building models for inference.

<https://developer.ibm.com/linuxonpower/deep-learning-powerai/try-powerai/>

IBM uses tensorflow for object detection. TensorFlow is an open-source software library for dataflow programming across a range of tasks. It is a symbolic math library, and is also used for machine learning applications such as neural networks.

b. Augmented Reality - AR.js - for the Web

AR.js is a solution for efficiently doing augmented reality on the web.

<https://github.com/jeromeetienne/ar.js>

c. Nodejs:

Node.js is a JavaScript runtime built on Chrome's V8 JavaScript engine. Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient.

<https://nodejs.org/en/download/>

Node.js' package ecosystem, npm is used to install the dependencies such as

<https://docs.npmjs.com/getting-started/installing-node>

"dotenv": "^4.0.0",

"express": "4.16.2",

"metrics-tracker-client": "^0.2.3",

"request": "2.83.0"

https support

d. JQuery: javascript framework

e. bootstrap: responsive web design

f. openssl: digital certificates for https support - must for mobile web access.

The two files you need are a PEM encoded SSL certificate and private key. PEM encoded certs and keys are Base64 encoded text with start/end delimiters that look like -----BEGIN RSA PRIVATE KEY----- or similar.

To create an SSL certificate you first need to generate a private key and a certificate signing request, or CSR (which also contains your public key).You can do this in a variety of ways, but here's how in OpenSSL.

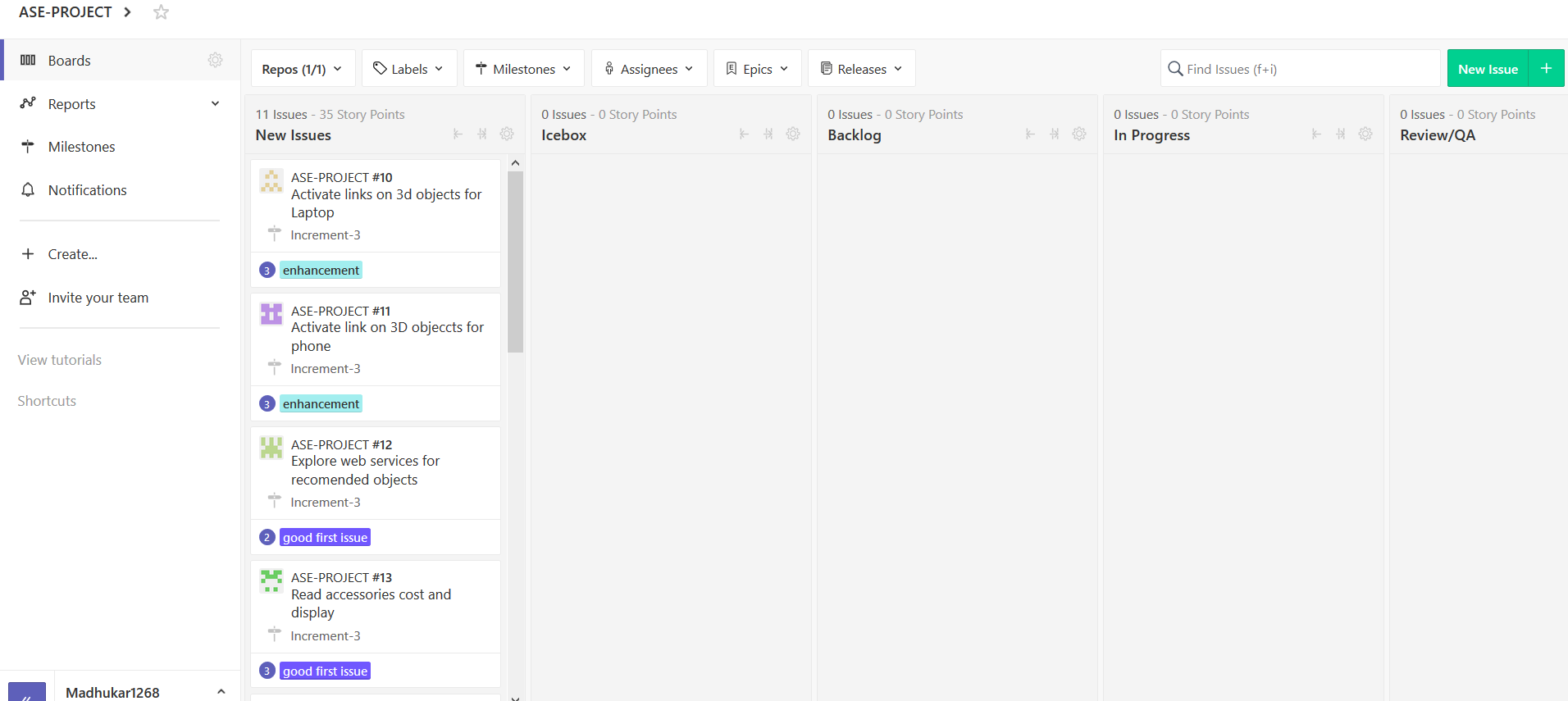
openssl req -newkey rsa:2048 -new -nodes -keyout key.pem -out csr.pem

This will cause you to enter an interactive prompt to generate a 2048-bit RSA private key and a CSR that has all the information you choose to enter at the prompts. (Note: Common Name is where you'll want to put the domain name you'll be using to access your site.) Once you've done this you would normally submit this CSR to a trusted certificate authority and once they've validated your request you would receive a certificate.

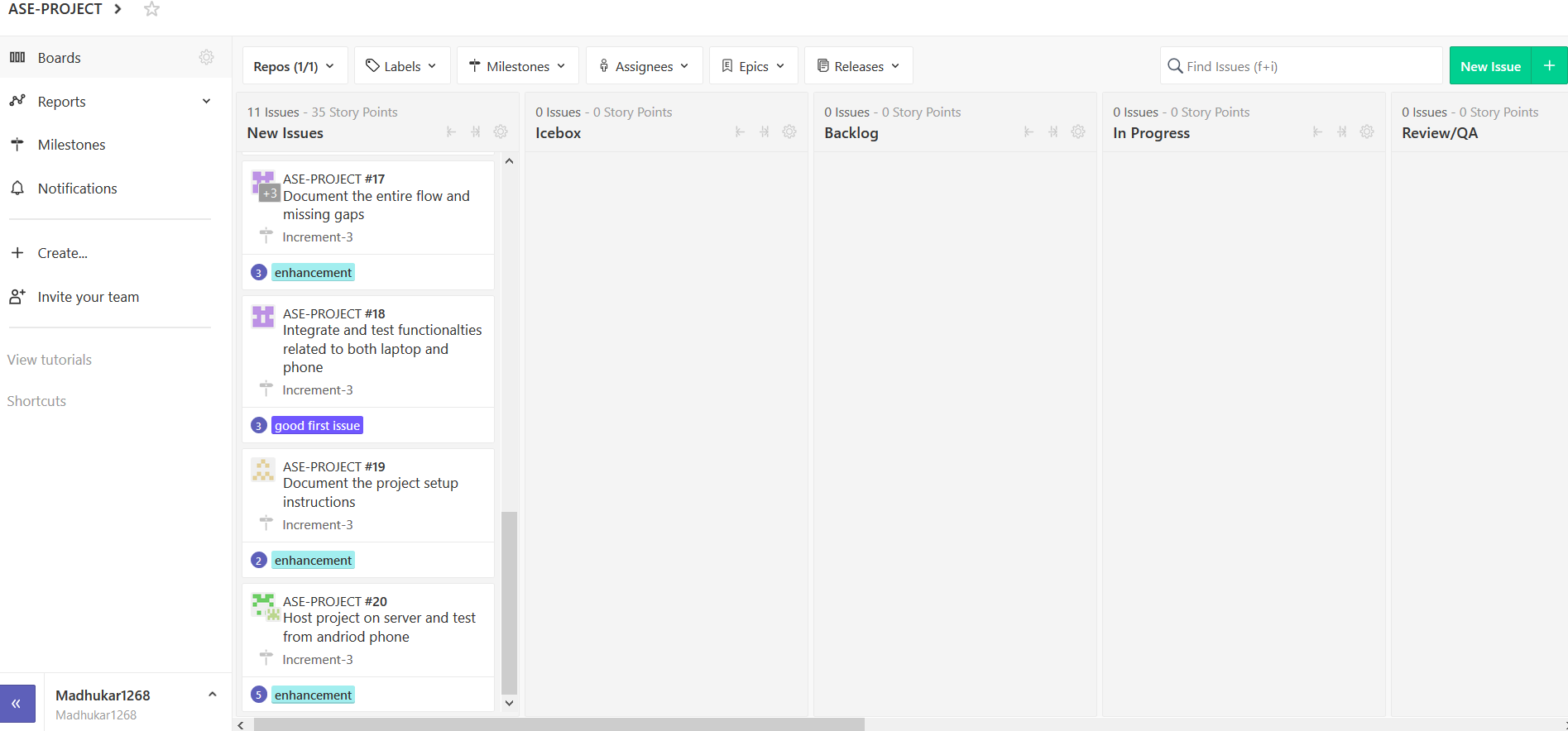
g. amazon api

**Zenhub report:**

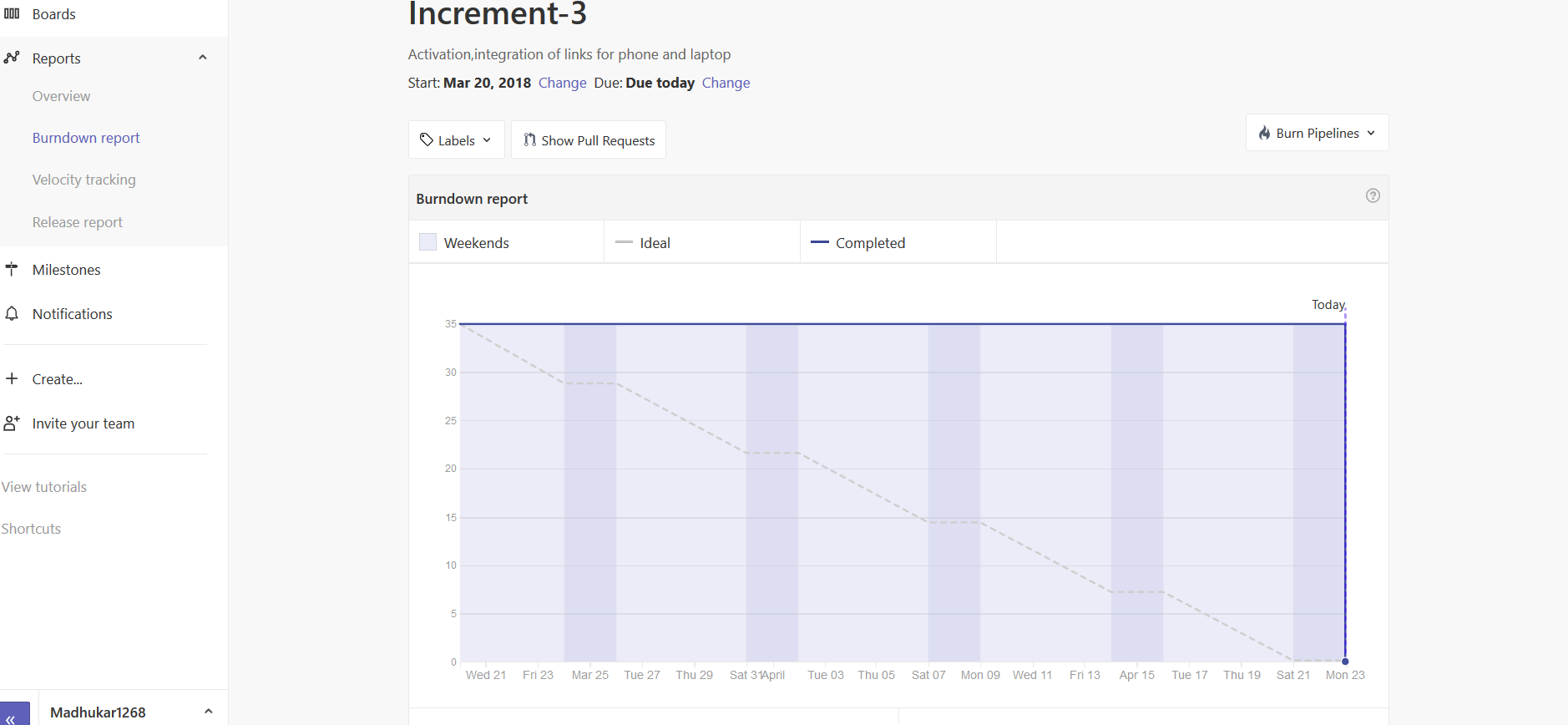
**Issues of increment-3**

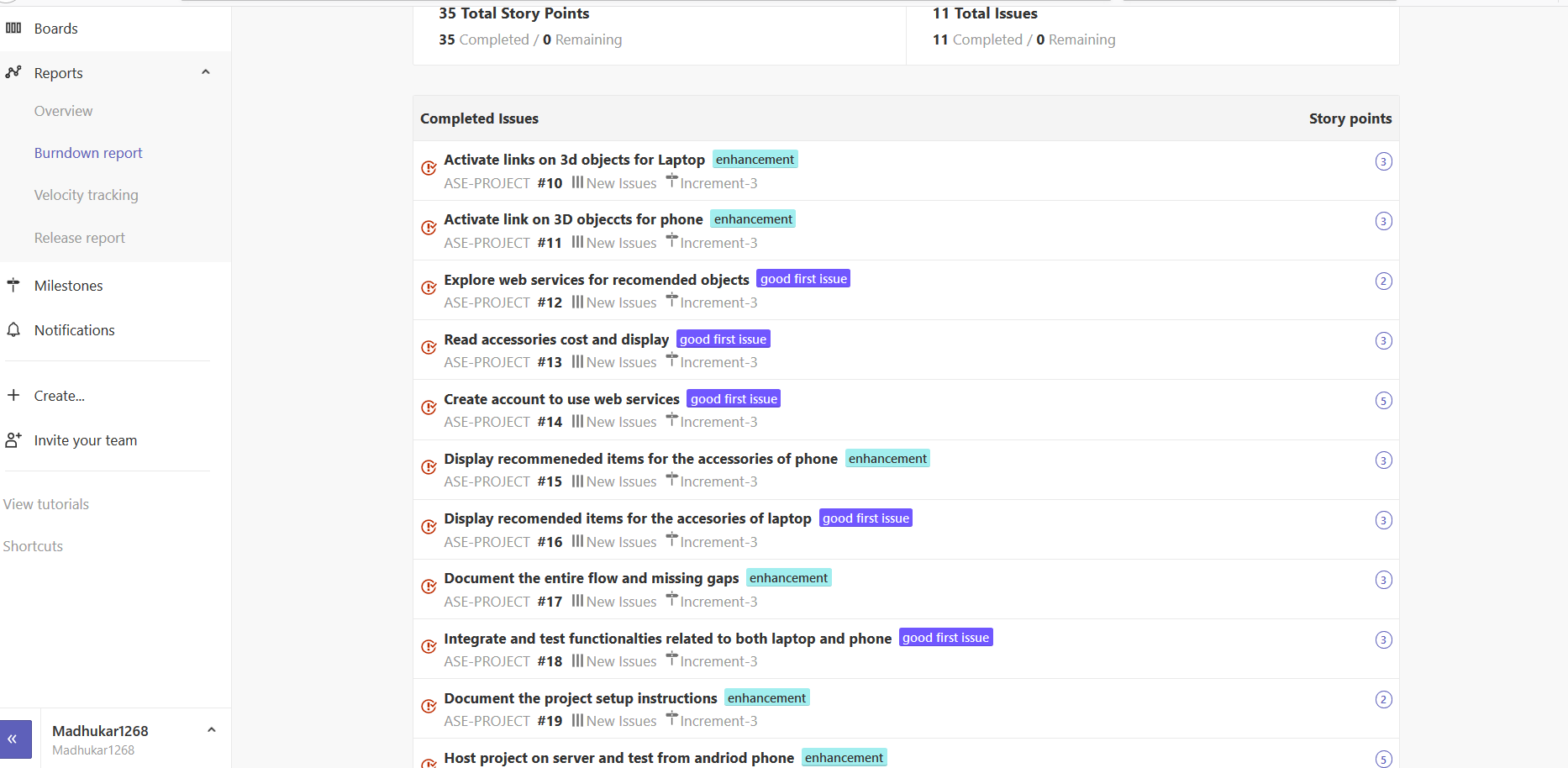






**Burndown chart for the above issues**





**Implementation Status report.**

**Work completed:**

1. Activated links on 3D objects for Laptop

2.Activated Links on 3D objects for phone.

3.Explore Webservices for recomended objects.

4.Read accessories cost and display.

5.Create account to use webservices.

6.Display recomended items for the accessories of laptop

7.Display recomended items for the accessories of phone.

8.Document the entire flow and missing gaps

9.Integrate and test functionalities related to both phone and laptop.

10.Document the project setup instructions.

11.Host project on sever and test from android phone.

**Description :**

The work has equally shared between all the four memebers of the team for the completion of increment-3.

**Resposnsibilites ,contribution and time allocated among team memebers.**

1.MD USMAN GANI SYED (LabId: 3-1) - 25% of work with 25 hours

He did the following tasks of iteration-3

a.Activated Links on 3D objects for phone.

b.Integrate and test functionalities related to both phone and laptop.

c.Explore Webservices for recomended objects.

1. MADHUKAR REDDY VURADI (LabId: 3-1) - 25% of work with 25 hrs

a.Activated links on 3D objects for Laptop

b.Create account to use webservices.

c.Document the project setup instructions.

3.CHAITANYA SAILESH TONDEPU (LabId: 3-2) - 25% of work with 25 hrs

a.Display recomended items for the accessories of phone.

b.Host project on sever and test from android phone.

c.Read accessories cost and display.

1. SAI KRISHNA TEJA KUNISETTY (LabId: 3-2) - 25% of work with 25 hrs.

a.Display recomended items for the accessories of Laptop.

b.Host project on sever and test from android phone.

c.Document the entire flow and missing gaps

TESTING:

In the Augmented Reality Advertisement,Firstly we run an application on laptop by using camera and then we scanned the Hiro marker.By using this our team developed a code for our project to display the 3D objects in a mobile.We successfully executed the code and now we have to test it by opening our mobile camera.Now, we integrated the code into mobile and opened the mobile camera. we tested scanning the Hiro marker in the mobile camera and we get the 3D object as a mobile shape.

Now Every single application should be tested before the deployment to the server. Here, we will use Mocha as the test running framework, and Chai as the assertion library. User interface as well as functionality can be thoroughly tested. Media support detection, camera detection, multiple camera detection, image capture and upload, object detection, appropriate accessory display, navigation to ecommerce site are few of the subtasks that can be provided with unit tests.

Implementation:

We have developed a web application which will be hosted on a server. The client can access it from any browser either from laptop or phone and get the feel of our AR application. By developing a web application it becomes accessible to everyone instead of downloading and installing OS specific applications(like android/IOS). The user will open the application and scan objects using camera. If the scan results found any laptop/phone, then our application will recognize and show accessories for it. Now we activated links on 3d objects for both phone and laptops and explore the webservices to read the accessory cost and display. Then we create an account to use web service and display the recommended items for the accessories of phone and laptops integrate and test functionalities related to both phone and laptop.

PROJECT MANAGEMENT

Description:-

Web

We used AR.js to build the initial code base necessary for presenting different accessories relative to the product.

API We chose the IBM PowerAI Vision API for object detection in our project as it gives us scope to experience the typical work flow of machine learning i.e preprocessing dataset, training, validation and predicting. We captured the frame from the camera and uploaded it to power AI vision API through nodejs site. We are able to receive json output and parse it. We have made cosmetic changes for better UI.