



## Project Document: EasyHealth

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## 1. BUSINESS CASE

### 1.1. Executive Summary

This business case outlines how the Easy Health Project will address current health care concerns faced by patients, esp. physically disabled, old and bedridden individuals. This application will also address the needs during medical emergencies. The business case will describe issues, recommendations, project goals, performance measures, assumptions along with benefits of implementing the project and justification of the project.

#### 1.1.1 Issue

With increasing population, there is a dearth of resources for health care like addressing health problems of infrequent patients, providing medical care to individuals who require it more frequently like bedridden, disabled face difficulty in commuting to hospital and pharmacy. This hindered by unfavorable weather conditions or emergencies. Due to this, there has been a considerable increase in medical emergencies. Considering these issues which have impacted the health-care system, and created an imbalance in the demand and supply of health care services. Centered around these issues, our ‘Easy Health’ application aims to make health-care easy and accessible for those who need it the most.

#### 1.1.2 Anticipated Outcomes

Implementing an application wherein the patient can consult a doctor remotely and get prescribed drugs home delivered from the pharmacy, if required. This application will also address emergency situations.

- Healthcare access will become more feasible for patients who are bedridden and disabled and result in less critical health emergencies.
- This real-time access will reduce the difficulties faced by the patients and improve the lifestyle or health and will be easily accessible by the patients/users.

#### 1.1.3 Recommendation

Various options and alternatives were analyzed to determine the best way to leverage technology to provide immediate health care services to the end users. The recommended Easy Health Application would be available on App Stores for the end users to install them on their mobile devices. The application would be accessible from the web as well. Thus, in case of an emergency, the patient would be able to access the app instantly from his/her mobile. The patient could also avail door to door service for medication using the app. The doctor can refer to the previous medical history, provided by the patients initially when they create their account, and prescribe medication accordingly.

### 1.1.4 Justification

With the advancement in technology, world being connected through the internet and customer services accessible on finger tips it is perhaps fitting that we see the use of the technological advancements in the field of healthcare. The current doctor consultation system works on an appointment basis whereas in case of an emergency the communication with the hospital is of prime importance. There is dissatisfaction among primary care physicians, specialists, and patients with respect to the consultation process. Excessive wait times for receiving specialist services and inefficient communication between practitioners result in decreased access to care and jeopardize patient safety. This is where our product Easy health brings in the ease of accessibility for patients with disability, old aged patients especially in case of emergency thereby addressing these concerns and help improve the consultation process. With the features, such as E-consultation, one touch emergency services, easy pay, intelligent diagnosis suggestions and medicine delivery system the patient would save the hassles of a doctor visit and getting the required medicines.

Following are some of the key statistical highlights which has been the major driver for this project:-

- In the emergency room context, on an average patient is forced to wait anywhere from 17 to 54 minutes before being seen by a physician and receiving care.
- A patient's entire emergency room visit – from arriving at the emergency room to receiving care and being sent home – can average as long as 191 minutes in some states.
- For appointments with family physicians, patients waited, on average, 19.5 days between the date of scheduling and the date of the appointment.

To improve on the above-mentioned situation by leveraging the use of technology, a system which could combine user friendly functionalities should be developed.

### 1.2. Business Case Analysis Team

Role	Description	Name/Title
Executive Sponsor	Provide executive support for the project	Gail Raynus, CEO
Technology Support	Provides all technology support for the project	Nitin Addla, CIO
Data Architecture	Provide data analysis for the user inputs	Vivek Sridhar, Data Engineer

Project Manager	Manages the business case and project team	Arjun Upadhyay, Project Manager
Software Support	Provides all software support for the project	Saksham Agrawal, Software Group Lead
Tech Lead	Manages the development process of the application	Shruti Narain, Development Lead
Business Analysis	Advises team on process improvement techniques and business strategies	Radhika Sharma, Business Analyst

### 1.3. Problem Definition

#### 1.3.1 Problem Statement

The problem that the case presents is the lack of access to health services like regular consultation and other medical procedures for patients in general, particularly those restricted to get this access like the physically disabled, bed-ridden and the injured. Also, health care clinics are burdened on a daily basis with the volume of patients requiring help. In most cases, the problems that most patients face do not necessarily require a lot of consultation time. If this were to be minimized and made use of more judiciously by using it on those patients who actually require it, it would benefit everyone.

#### 1.3.2 Organizational Impact

The proposed solution will not change the organizational structure as such, but a few support staff would be in charge of the application interface within healthcare clinics and hospitals to make sure that all consultation services occurring through the application are happening efficiently.

#### 1.3.3 Technology Migration

The only instance of technology migration would be in health care centers and clinics, where the scheduling and profiling systems would be linked to the application feeding into a central database where all the patient related, clinic related, and scheduling information would be stored. Other changes to the system would be in the form of adding a provision for the physicians to examine all the listed patient information and provide a diagnostic feedback electronically.

## 1.4. Project Overview

### 1.4.1 Project Description

According to WHO, diseases that require urgent medical care, like Ischemic heart disease and stroke, are the world's biggest killers. Emergency in patients can differ from being a stroke, severity in lower respiratory infections to bronchitis and other tracheal ailments. Some of these conditions also affect the patients who are either disabled, bedridden or simply cannot access the healthcare provisions due to unavoidable reasons. These situations need to handle with expertise and with extreme care. The moment these problems surface the patient needs to consult the doctor immediately. There may be scenarios that the patient overlooks the small problems that might be a root cause of bigger health problems in future. Regular checkups and preventive care are required to avoid discomforts or risks. This project will try to reduce the complications faced by the patients by leveraging the advanced technology and proper communication channel. Easy Health application will recognize any symptoms during health check and provide an appropriate diagnostic solution, considering the previous medical history of the patient, hence preventing the condition from severing. This app will also provide one-touch services for patients who face difficulty in accessing healthcare provisions like consultation, prescribed medicines and blood requests. Easy Health app will also contain a set of FAQs about general health care which will be appended and updated as the need arises.

### 1.4.2 Goals and Objectives

Our main purpose is to make health care more accessible and One Touch services for patients who face difficulty in accessing healthcare provisions like consultation, prescribed medicines and blood requests.

The first set of objectives would be centered on getting approvals from all the concerned stakeholders like Health care clinics, physicians, pharmacies and blood banks.

Secondly, the use cases would be finalized by the development team and business analysis team.

Consequently, the development of the application would be executed in phases with user acceptance testing at each phase.

### 1.4.3 Project Performance

Key Resource/Process/Service	Performance Measure
IOS/Android Platform	Smartphone based application to address current health care concerns faced by patients, esp. physically disabled, old and bedridden individuals.
Appointment	The patient will be assigned to a doctor automatically depending on the availability and the study of doctor.

Reports	The system has the ability to send the medical reports to patient and store them for any future references.
Emergency alerts	The doctor can receive alerts, depending on the patient's symptoms where he can prioritize the appointment or send in an ambulance if it is an emergency.
Pharmacy	The doctor can directly send the prescription to the pharmacy and the medicines will be delivered to the patient's house.

#### 1.4.4 Project Assumptions

For the project to be a successful working model, the following assumptions were made:

- Availability of Doctor: For assisting the patients, we are assuming that at least one doctor from their respective study to be available
- IT support team to continuously monitor the availability of doctors and feed the systems for auto appointment for patients.
- Every patient who enters his symptoms will be assigned to a doctor of the particular study.
- The pharmacy delivers medicines to the patients without much delay.

#### 1.4.5 Project Constraints

Keeping in mind, all the assumptions, goals and objectives, the project has some constraints to be taken care of:

- A training session required for the hospital doctors, pharm store and blood bank employees.
- As implementation will be done internally and not by the product developers or vendors, there will be limited support from the hardware/software providers

#### 1.4.6 Major Project Milestones

The following are the major project milestones identified at this time. As the project planning moves forward and the schedule is developed, the milestones and their target completion dates will be modified, adjusted, and finalized as necessary to establish the baseline schedule.

Milestones/Deliverables	Target Date

Project Charter	02/07/2017
Project Plan Review and Completion	02/16/2017
Project Kickoff	03/01/2017
Phase I Complete	04/15/2017
Phase II Complete	06/15/2017
Phase III Complete	08/15/2017
Phase IV Complete	10/15/2017
Phase V Complete	12/15/2017
Closeout/Project Completion	12/31/2017

## 1.5.Strategic Alignment

Plan	Goals/Objectives	Relationship to Project
Tie up with hospitals, pharma companies and blood banks	To get funds from hospitals and pharma companies. Get doctors, pharmacist involved.	The objective of this project is to provide ease of access to the patients by offering a common platform between doctors, pharma companies and patients through an application to get the benefits like: <ul style="list-style-type: none"> <li>● remote consultation</li> <li>● notify doctors during emergencies</li> <li>● get pharmacy home delivered</li> </ul>
Implementation of platform independent application	Utilize new technology to remove system constraints	New technology will make this application platform independent and users can use this application with ease without worrying about the compatibility with mobile devices.

## 1.6. Cost Benefit Analysis

Action	Action Type	Description	First year costs (- indicates anticipated savings)
Application design and software	Cost	Cost for IT group to design and develop new application	\$40,000
Marketing Cost	Cost	Marketing cost recurring for the hospital to publicize the features of the application	\$7,200
Data servers	Cost	Data servers are needed to maintain records of patients	\$33,000
System maintenance	Cost	Systems should be checked frequently to prevent from any glitch	\$12,000
Advertisements	Savings	Revenue from advertisements can be generated as they can be displayed on the application	-\$50,000
Revenue from downloads	Savings	Cost to download the application is 10\$. Let us say 1000 patients downloaded the application in a year's span, the total revenue generated out of it is 10\$ * 1000 downloads = \$10,000.	-\$10,000
Reduce employee turnover by 15%	Savings	Savings in cost to out-process exiting employee and recruit, hire, and train new support staff for doctors and can save on the resources linked to it.	-\$60,000
<b>Net First Year Savings</b>			<b>\$27,800.00</b>

Net Present Value = Present Total Benefits - Present Total Costs

Total Benefits = \$120,000; Total Costs = \$92,200

NPV = \$27,800

Using Return on Investment to analyze the above data

ROI = Net Profit / Cost Investment =  $(120,000 - 92,200) / 92,200 = 30.15\%$

The above data shows that the project has a healthy return on investment and it is financially viable.

## 1.7. Alternatives Analysis

The following alternative options have been considered to address the business problem. These alternatives were not selected for several reasons which are also explained below.

Alternative Option	Reasons for Not Selecting Alternative
E consultation	<ul style="list-style-type: none"> <li>· The system exists already.</li> <li>· Limited functionalities.</li> <li>· It's not a one stop solution system</li> </ul>
Alternative Option	Reasons for Not Selecting Alternative
Telephone & Email consultations	<ul style="list-style-type: none"> <li>· privacy issues exist with sharing patient information over e-mail.</li> <li>· finding a common time available for multiple physicians is difficult for telephone consultations.</li> <li>· No vision for future expansion of business</li> </ul>
Alternative Option	Reasons for Not Selecting Alternative
Telemedicine	<ul style="list-style-type: none"> <li>· Issues with physician synchronicity and has the added complication of requiring specialized equipment.</li> </ul>

## 2. USE CASES

### 2.1. Patient

ID and Name	UC-1.1 Register/Login		
<b>Created by</b>	Nitin	Date Created	3/9/2017
<b>Primary Actor</b>	Patient	Secondary Actors	Admin
<b>Description</b>	The patient registers an account if he/she is a new user. Uses his/her valid credentials and login if existing user.		
<b>Trigger</b>	The patient indicates to register or login		
<b>Preconditions</b>	1 The patient has valid login credentials if he/she is an existing user 2 The new patient must possess valid email id and details to register.		
<b>Post Condition</b>	The patient should be able to successfully login		
<b>Normal Flow</b>	1.The patient login/registers by providing valid details. 2.The patient must be able to successfully login to home page after login. 3. If the patient gives invalid credentials, an appropriate error message should be shown.		
<b>Alternative Flow</b>	None		
<b>Exceptions</b>	The system should show an error message if wrong credentials or details are provided		
<b>Priority</b>	High		
<b>Frequency of use</b>	System should be operational all the time		
<b>Business Rules</b>	The patient should be able to successfully login/register		
<b>Other Information</b>	Once the patient registers, an entry will be made in the database about the patient and all his details shall be stored from here on.		
<b>Assumptions</b>	Assume that the system allows new users to register without any glitch.		

ID and Name	UC-1.2 Request Medical Care		
<b>Created by</b>	Nitin	Date Created	3/9/2017
<b>Primary Actor</b>	Patient	Secondary Actors	Doctor, Admin
<b>Description</b>	The patient after registering/login, fills in his symptoms in the form and the system analyses the problem according to the system and this is submitted for Doctors review and to schedule an appointment with the doctor.		
<b>Trigger</b>	When patient wishes to get his symptoms diagnosed		
<b>Preconditions</b>	1 The patient is logged on to the system. 2 Patient has some idea about his symptoms		
<b>Post conditions</b>	The patient must be able to get an appointment scheduled		
<b>Normal flow</b>	1 The patient is logged on 2 The patients enter his symptoms in the form and the form keeps dynamically updating the drop-down boxes depending on the first symptom entered, narrowing down on the cause of the symptoms. 3 The patient the requests for an appointment of doctor		
<b>Alternative Flow</b>	Go to the hospital and wait till you get an appointment of the doctor.		

<b>Exceptions</b>	The system should function without a glitch while taking the symptoms or trying to schedule an appointment
<b>Priority</b>	High
<b>Frequency of use</b>	System should be operational at all times
<b>Business Rules</b>	The system should allow the user to give symptoms and should schedule an appointment depending on the severity of the problem diagnosed from symptoms.
<b>Other Information</b>	The doctor gets the request from patient
<b>Assumptions</b>	The system is recording all the vital signs in the database and maintaining a record.

ID and Name	UC-1.3 View/ Update information		
<b>Created by</b>	Nitin	Date Created	3/9/2017
<b>Primary Actor</b>	Patient	Secondary Actors	Admin
<b>Description</b>	The patient must be able to view his past and current details and his personal information and must be able to edit and update with latest information if required.		
<b>Trigger</b>	When the patient wishes to update his information, which is on system		
<b>Preconditions</b>	The patient should possess an active account and must login with his credentials		
<b>Post conditions</b>	The system updated the information of the patient.		
<b>Normal flow</b>	1 The patient is logged on to the system 2 The patient views his information and his past appointments and prescriptions 3 The patient can edit his information if an update of information is needed.		
<b>Alternative Flow</b>	Can request the Admin to update the information, by providing patient account ID		
<b>Exceptions</b>	The system should report to admin if patient is not able to update information		
<b>Priority</b>	Medium		
<b>Frequency of use</b>	System should be operational always		
<b>Business Rules</b>	The patient must be able to login and view / update information		
<b>Assumptions</b>	The user possesses an active account		

ID and Name	UC-1.4 Access Prescriptions		
<b>Created by</b>	Nitin	Date Created	3/9/2017
<b>Primary Actor</b>	Patient	Secondary Actors	Admin
<b>Description</b>	The patient after logged on must be able to access prescriptions which have been prescribed by doctors. These can be current prescription or a past prescription, which the patient may want to refer.		
<b>Trigger</b>	When a patient wants to access prescription		
<b>Preconditions</b>	The patient must be logged on to the system and have been prescribed by the doctor before the patient tries to look for the prescription		
<b>Post conditions</b>	The patient would have accessed the prescription		
<b>Normal flow</b>	1 The patient logged on to the system 2 The patient can click on the tap prescriptions to check all the prescription ever prescribed by doctor.		
<b>Alternative Flow</b>	None		
<b>Exceptions</b>	The system should report to admin if patient is not able to access prescriptions		

<b>Priority</b>	High		
<b>Frequency of use</b>	System should be operational always		
<b>Business Rules</b>	The patient must be able to access prescriptions at all times.		
<b>Assumptions</b>	The user possesses an active account and has access to prescriptions.		

ID and Name	UC-1.5 View bills & make payments		
<b>Created by</b>	Nitin	Date Created	3/9/2017
<b>Primary Actor</b>	Patient	Secondary Actors	Admin
<b>Description</b>	The patient should be able to view his billing statement and his past bills and should be able to make a payment online.		
<b>Trigger</b>	When the patient wishes to make a payment, and view his bills		
<b>Preconditions</b>	The patient must be logged on and a billing statement has been generated		
<b>Post conditions</b>	The patient would have viewed his bills and would have made a payment		
<b>Normal flow</b>	1 The patient is logged on to the system 2 The patient checks for any new bills assigned to him in the payments tab 3 He can view the billing statement or even make a payment.		
<b>Alternative Flow</b>	None		
<b>Exceptions</b>	The system should report to admin if the patient's bill is not generated or not viewable		
<b>Priority</b>	High		
<b>Frequency of use</b>	System should be operational always		
<b>Business Rules</b>	The user must be able to view his billing statements and make an online payment.		
<b>Assumptions</b>	The user possesses an active account and has access to billing statements.		

## 2.2. Doctor

ID and Name	UC-2.1 Access patient request		
<b>Created by</b>	Nitin	Date Created	3/9/2017
<b>Primary Actor</b>	Doctor	Secondary Actors	Patient, Admin
<b>Description</b>	When the patient puts in their request for scheduling appointment and enters symptoms, the doctor gets the request notification, now the doctor by looking at the request can schedule the appointment depending the priority and availability.		
<b>Trigger</b>	When the Doctor gets a notification request of patient by system.		
<b>Preconditions</b>	1 The doctor should get a notification 2 The patient should request for an appointment 3 The system should work effectively to send a notification		
<b>Post conditions</b>	The doctor schedules the appointment depending on the priority and availability.		
<b>Normal flow</b>	1 The patient should login and put a request for appointment by filling in the form with symptoms and then the system evaluates the symptoms and comes to a soft decision on the diagnosis and checks for an available doctor in that study and schedules an appointment by considering priority. 2 The doctor receives a notification and he can confirm the appointment depending on the availability and priority.		

<b>Alternative Flow</b>	None		
<b>Exceptions</b>	The system should report to admin if the doctor is not able to perform action on patients request.		
<b>Priority</b>	High		
<b>Frequency of use</b>	System should be operational always		
<b>Business Rules</b>	The doctor should be able to perform action on the request sent from patient		
<b>Assumptions</b>	Patient should have sent a request about symptoms and the doctor has access to the patient's request		

<b>ID and Name</b>	<b>UC-2.2 Process Request (Refer Patient History, Analyze symptoms)</b>		
<b>Created by</b>	Nitin	Date Created	3/9/2017
<b>Primary Actor</b>	Doctor	Secondary Actors	Patient.
<b>Description</b>	Once the doctor schedules the appointment or responds to the request from patient, he first needs to look at the patients' health history and analyze his new symptoms and then prescribe the patient with the medication or the best possible outcome going forward.		
<b>Trigger</b>	When the doctor accepts the request from patient and starts to investigate on the symptoms.		
<b>Preconditions</b>	1 The doctor should get a notification 2 The patient should request for an appointment 3 The system should work effectively to send a notification 4 The patient's history should be accessible to the doctor.		
<b>Post conditions</b>	The doctor would have analyzed the condition and prescribed or given proper medical consultation		
<b>Normal flow</b>	1 The patient should login and put a request for appointment by filling in the form with symptoms and then the system evaluates the symptoms and comes to a soft decision on the diagnosis and checks for an available doctor in that study and schedules an appointment by considering priority. 2 The doctor now, analyses the patient's symptoms, his health history and then prescribes medication		
<b>Alternative Flow</b>	None		
<b>Exceptions</b>	The system should report to admin if the doctor is not able to refer to patient's history		
<b>Priority</b>	High		
<b>Frequency of use</b>	System should be operational always		
<b>Business Rules</b>	The doctor should be able to access patient's history and analyze symptoms		
<b>Assumptions</b>	Doctor should have access to patient's health history and symptoms analysis which is done by the system.		

<b>ID and Name</b>	<b>UC-2.3 Provide Diagnosis</b>		
<b>Created by</b>	Nitin	Date Created	3/9/2017
<b>Primary Actor</b>	Doctor	Secondary Actors	Patient.

<b>Description</b>	Once the doctor schedules the appointment or responds to the request from patient, he first needs to look at the patients' health history and analyze his new symptoms and then prescribe the patient with the medication or the best possible outcome going forward and sending out prescriptions to pharmacy and patients.
<b>Trigger</b>	When the doctor finds the cause for the symptoms and tries to prescribe medicine or provide medical consultation.
<b>Preconditions</b>	1 The doctor should get a notification 2 The patient should request for an appointment 3 The system should work effectively to send a notification 4 The patient's history should be accessible to the doctor. 5 The pharmacy should be well equipped to deliver medicines of any symptoms
<b>Post conditions</b>	The doctor would have analyzed the condition and prescribed or given proper medical consultation
<b>Normal flow</b>	1 The patient should login and put a request for appointment by filling in the form with symptoms and then the system evaluates the symptoms and comes to a soft decision on the diagnosis and checks for an available doctor in that study and schedules an appointment by considering priority. 2 The doctor now, analyses the patient's symptoms, his health history and then prescribes medication or provide medical consultation to the patient.
<b>Alternative Flow</b>	Go to the hospital, check for doctor's appointment, wait for scheduling appointment and then go meet doctor to talk about medical condition.
<b>Exceptions</b>	The system should report to admin if the doctor is not able to refer to patient's history or not able to prescribe or provide consultation over the application.
<b>Priority</b>	High
<b>Frequency of use</b>	System should be operational always
<b>Business Rules</b>	The doctor should be able to access patient's history and analyze symptoms and prescribe medicines
<b>Assumptions</b>	Doctor should have access to patient's health history and symptoms analysis which is done by the system. Doctors should be able to send the prescription to the pharmacy.

### 2.3. Pharmacist

ID and Name	UC-3.1 Access doctor request		
<b>Created by</b>	Arjun	Date Created	3/9/2017
<b>Primary Actor</b>	Pharmacist	Secondary Actors	Patient, Doctor
<b>Description</b>	When the doctor provides prescription for the treatment of the patient, the pharmacist gets the request notification, now the pharmacist by looking at the prescription can intimate the patient about the delivery of his/her medicines.		
<b>Trigger</b>	When the Pharmacist gets a notification request of doctor by system.		
<b>Preconditions</b>	1 The Pharmacist should get a notification 2 The doctor should able to send prescription to pharmacist 3 The system should work effectively to send a notification		

<b>Post conditions</b>	The pharmacist sends the medicine as per the situation and availability.
<b>Normal flow</b>	1 The doctor examines patient and provides prescription to the patient and pharmacist as well 2 The pharmacist receives a notification and he can send the prescription to the patient depending on the availability and priority.
<b>Alternative Flow</b>	None
<b>Exceptions</b>	The system should report to admin if the pharmacist is not able to perform action on doctor's request.
<b>Priority</b>	High
<b>Frequency of use</b>	System should be operational always
<b>Business Rules</b>	The doctor should be able to perform action on the request sent from patient
<b>Assumptions</b>	Doctor sends prescriptions to the pharmacist

ID and Name	UC-3.2 Inventory maintenance and Order delivery		
<b>Created by</b>	Arjun	Date Created	3/9/2017
<b>Primary Actor</b>	Pharmacist	Secondary Actors	Patient
<b>Description</b>	After getting prescription from doctor pharmacist will start working on the delivery of the medication. The pharmacist will check medicine inventory and based on that he will take next steps to update the inventory or proceed with the order given by doctor		
<b>Trigger</b>	When the Pharmacist receives prescription from doctor.		
<b>Preconditions</b>	1 The Pharmacist should accept the request 2 The doctor should able to send prescription to pharmacist 3 The system should work effectively to send a notification		
<b>Post conditions</b>	The pharmacist sends the medicine as per the situation and availability. The pharmacist will update the inventory in case of shortage of medicine		
<b>Normal flow</b>	1 After getting prescription from the doctor pharmacist will check medicine inventory 2 If sufficient stock of medicine is there then pharmacist will place and pack the order. After he will send medicine to the patient address and notify patient about the order status 3 If there is less stock then pharmacist will contact suppliers for the additional stock of medicine and then make update in medicine inventory		
<b>Alternative Flow</b>	Patient can come and pick up the medicine from the store		
<b>Exceptions</b>	The system should report to admin if the pharmacist is not swiftly act on the inventory status and order delivery.		
<b>Priority</b>	High		
<b>Frequency of use</b>	System should be operational always		
<b>Business Rules</b>	The pharmacist should be readily available with all the required medicine and maintain the inventory plus provide fast delivery to the patient		
<b>Assumptions</b>	Doctor sends prescriptions to the pharmacist Pharmacist has all the supplier contact and information		

## 2.4. Admin

ID and Name	UC4.1- Create and Assign User Roles
-------------	-------------------------------------

<b>Created by</b>	Arjun	Date Created	3/9/2017
<b>Primary Actor</b>	Admin	Secondary Actors	IT support lead
<b>Description</b>	The Admin will create various user roles and assign them responsibility as per their domain and specialty		
<b>Trigger</b>	Admin logs in the system.		
<b>Preconditions</b>	None		
<b>Post conditions</b>	Admin create users and give them access of the system/application based on their roles		
<b>Normal flow</b>	1 The Admin will log in the system. 2 The admin will create different user roles who all are agree to be part of the application like doctor, pharmacist, blood bank and ambulance service provider 3 The admin will assign them responsibilities and provide credential to use application		
<b>Alternative Flow</b>	None		
<b>Priority</b>	High		
<b>Frequency of use</b>	The system should be highly available and up always		
<b>Business Rules</b>	The Admin will handle the entire EasyHealth application		
<b>Assumptions</b>	Users are willing to be a part of EasyHealth application		

ID and Name	UC4.2- Troubleshooting technical issues and solve complaint		
<b>Created by</b>	Arjun	Date Created	3/9/2017
<b>Primary Actor</b>	Admin	Secondary Actors	IT support lead
<b>Description</b>	The Admin will able to handle technical issues while using the EasyHealth application. He/She can also solve the complaint raised by users		
<b>Trigger</b>	Admin receives notification regarding issues and complaint		
<b>Preconditions</b>	Users must be using the application		
<b>Post conditions</b>	Application issues should be handled Users complaint has been addressed properly		
<b>Normal flow</b>	1 The Admin logs in the system. 2 The Admin receives issues and complaint from the authenticate application users 3 The Admin work on the issues and complaints		
<b>Alternative Flow</b>	None		
<b>Priority</b>	High		
<b>Business Rules</b>	The Admin will handle the entire EasyHealth application		
<b>Assumptions</b>	The Admin has received valid complaint The Admin has sufficient technical knowledge or staff to resolve issues		

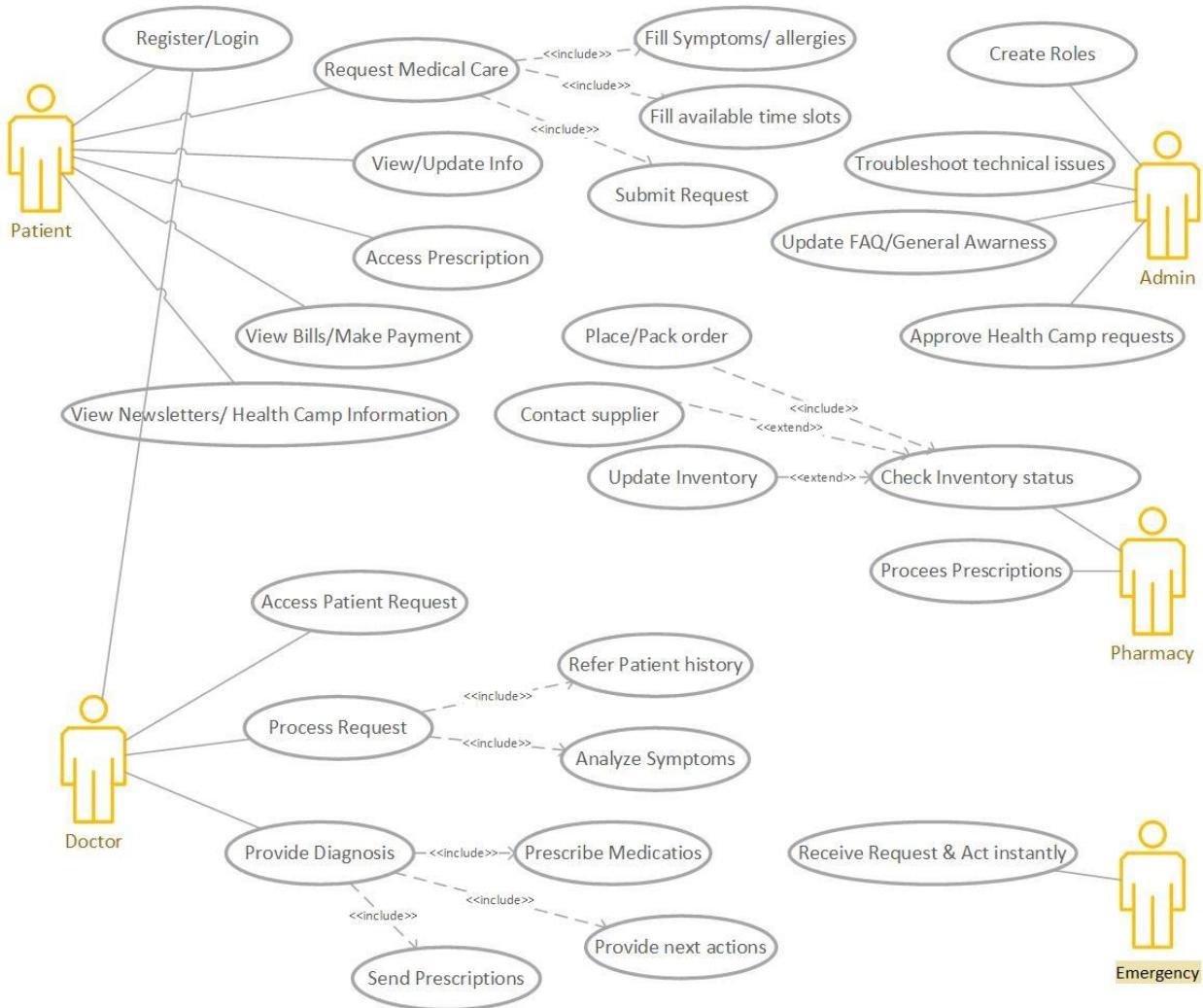
ID and Name	UC4.3- General post		
<b>Created by</b>	Arjun	Date Created	3/9/2017
<b>Primary Actor</b>	Admin	Secondary Actors	-
<b>Description</b>	The Admin updates FAQs based on the questions by users of application The Admin should post general health awareness related articles and information provided by doctors or healthcare expert The Admin organize and conduct health camps for public		
<b>Trigger</b>	Admin receives materials, questions or ideas from different users		
<b>Preconditions</b>			

<b>Post conditions</b>	FAQs should be latest and updated Information should be provided to the public through health camps and other materials
<b>Normal flow</b>	1 The Admin logs in the system. 2 The Admin identifies most asked questions and updates FAQs 3 The Admin post general healthcare tips received from doctors and experts 4 The Admin plan and organize health camps
<b>Alternative Flow</b>	None
<b>Priority</b>	High
<b>Business Rules</b>	The Admin takes necessary actions/steps to increase healthcare awareness
<b>Assumptions</b>	The Admin gets questions from the patients and proper answers from doctors The Admin has sufficient funds and resources

## 2.5. Emergency Service

ID and Name	UC1- Emergency request		
<b>Created by</b>	Arjun	Date Created	3/10/2017
<b>Primary Actor</b>	Ambulance Provider/ Blood Bank	Secondary Actors	Doctor
<b>Description</b>	Ambulance Provider/ Blood Bank receives request for Ambulance in emergency from the Doctor. He / She will act on it ASAP		
<b>Trigger</b>	Request received for ambulance / Blood from the Doctor		
<b>Preconditions</b>	Ambulance Provider/ Blood Bank must have access to the request		
<b>Post conditions</b>	Ambulance Provider/ Blood Bank must be able to fulfill the request raised by doctor as soon as possible		
<b>Normal flow</b>	1 Ambulance Provider/ Blood Bank receives the ambulance request from the Doctor. 2 The Request is processed ASAP. 3 Ambulance Provider/ Blood Bank checks if there are more requests to act upon.		
<b>Alternative Flow</b>	None		
<b>Exceptions</b>	Requests should be monitored on regular basis or there should be notified by any message or alarm		
<b>Priority</b>	High		
<b>Frequency of use</b>	The system should be highly available and up always		
<b>Business Rules</b>	Ambulance Provider/ Blood Bank must have access to the request		
<b>Assumptions</b>	Regular monitoring of requests Ambulance Provider has sufficient ambulances to provide service		

## 2.6. Use Case Diagram



### 3. REQUIREMENTS

#### 3.1. Business Requirements

ID	Business Requirement Statement
B1	The “EasyHealth” app/website shall provide real-time reporting system which monitors physically handicapped and old age patient’s health so that problems in travelling for consultation can be mitigated.
B2	The system shall enhance communication between patient and doctors by reducing time consumption in regular checkups.
B3	The system shall augment business growth by promoting apps.
B4	The system shall provide the facility for home delivery of medicine for differently abled patients and old age persons
B5	The system shall increase awareness regarding general healthcare issues and precautions

#### 3.2. User Requirements

ID	User Requirement Statement
U1	User shall be able to sign-in by using the login button on the screen
U2	User shall be able to view his/her profile
U3	User shall be able to view current and past details (medical history, prescriptions etc..)
U4	Payment options shall be associated with user account while creation
U5	User shall be able to add multiple documents related to his/her role
U6	User shall be able to reset password

#### 3.3. Functional Requirement

ID	Functional Requirement Statement	ST
User Role	Patient	
F 1.1	The system shall allow the user (patient) to register or login if an account already exists	A
F 1.2	The system should display all the types of medical services that a patient can avail currently	A
F 1.3	The system shall present a form upon selection of medical care request	A
F 1.4	The system shall create an instance of the care request with unique ID for the admin to trace easily	A
F 1.5	The system should present all the available time slots for any potential appointments in the near future for all clinics available	A
F 1.6	The system shall send out an acknowledgement receipt to the patient upon completion of the form with detailed next steps	A
F 1.7	The system should have the option to edit personal information of the patient and edit any of the request care forms	A
F 1.8	The system should notify the patient of appointment timings and other care-related notifications	A
F 1.9	The system shall allow the patient to access prescriptions and provide feedback after a consultation	A

F 1.10	The system shall allow a patient to track the status of an incoming shipment of medicine from the pharmacy	A
F 1.11	The system should allow the patient to sign up for health camps and other medical awareness programs	A
F 1.12	The system should allow the patient to access bills and make a payment with multiple methods	A

User Role	Doctor	
F 2.1	The system shall allow the doctor to view and select the patient from the list	A
F 2.2	The system shall display the patient's full name, age, gender and a button to display the medical, prescription and vital sign report history in a tabular format	A
F 2.3	The system shall allow the doctor to see the line chart with of vital signs of an associated patient along with the normal range and threshold.	A
F 2.4	The system shall provide color coding for the variations, of vital signs, above or below the threshold ranges	A
F 2.5	The system shall allow the doctor to view the previous prescriptions and add new medicines to the selected patient.	A
F 2.6	The system shall display the content of prescription i.e. the date of prescription issued, the medicines it contains and the dosage of each medicine.	A
F 2.7	The system shall allow the doctor to update the patient information, like vital signs and prescription details.	A
F 2.8	The system shall capture the conversation chain in the database.	A
F 2.9	The system shall allow the doctor to contact the pharmacist to provide medicines to the patient.	A
F 2.10	The system shall allow the doctor to contact the blood bank in case of emergency.	A
F 2.11	The system shall allow the doctor the doctor to contact the other user roles and vice-versa	A
F 2.12	The system should notify the doctor as soon as the patient schedules an appointment.	A
F 2.13	The system should notify the doctor as soon as the patient schedules an appointment.	A
F 2.14	The system should notify doctor as soon as the other user roles send message (to the doctor)	A
F 2.15	The system should allow the doctor to notifications on the dashboard.	A
F 2.16	The system shall list the type of appointments.	A

F 2.17	The system shall list out the patient's name which are currently diagnosed by the logged-on doctor.	A
F 2.18	The system shall allow the doctor to contact the helpdesk.	A

User Role	Admin	
F 3.1	The admin will be shown three menus: -Manage User -Manage Roles -Manage User Profile	A
F 3.2	When the admin selects the first option, he will be able to add/modify/delete users.	A
F 3.3	When the admin selects the second option, he will be able to add/modify/delete roles	A
F 3.4	The third option would be used for the admin to assign roles (single/multiple) to the users created through the above menu.	A
F 3.5	This section will display a list of issues raised by the users in a tabular form.	A
F 3.6	The table will consist of Issue Id, Issue date, Issue Raised by, Reason, Status, Priority.	A
F 3.7	The issues will be notified to the admin as soon as they are raised.	A
F 3.8	Once, the admin fixes the issue, he will update the status of the issue.	A
F 3.9	Once the issue is resolved, the user who raised the request will be notified.	
F 3.10	This section will allow the admin add/modify/delete FAQS	A
F 3.11	The admin would be given the option of publishing the FAQ or saving it as draft and making it disappear from the actual website	A

User Role	Pharmacist	
F 4.1	The user interface will show the pharmacist employee a table with all the requests sent by the various Doctors.	A
F 4.2	The system shall notify the pharmacists of the incoming requests.	A
F 4.3	The pharmacists will be able to click on the individual rows to view the details of the order.	A
F 4.4	The table will also show the status of the request if it has just arrived or is being processed or has been processed	A
F 4.5	Any failure in the processing of the request will be notified to the pharmacists and the request in the table will be highlighted in the row	A
F 4.6	The user interface will have two options for the pharmacist: -Manage Inventory -Place Order for the Patient	A
F 4.7	When the user selects Manage Inventory, he will be shown a table which will have the stock levels of the medicines.	A
F 4.8	Following will be the columns of the table: Medicine Id, Medicine Name, Supplier Name, Actual Quantity, Required Quantity, Unit Price, Contact Supplier	A

F 4.9	If any medicine has required quantity greater than the actual quantity, the pharmacist will be notified.	A
F 4.10	The last column in the table will have a button “Contact Supplier” to request for supply of medicines.	A
F 4.11	The second menu will allow the pharmacists to view a list of prescriptions the doctor has sent.	A
F 4.12	It will contain two tables:	A
F 4.13	First table will have all the prescriptions that are present in the right amount in the warehouse	A
F 4.14	The second table will contain those prescriptions for which the pharmacists is waiting for the availability of the medicines from the supplier.	A
F 4.15	The pharmacist will be able to place order for the requests in the first table by clicking the button “Place Order”	A
F 4.16	The notification will be sent instantly to the patient.	A

User Role	Blood Bank	
F 5.1	The system would allow the Blood Bank employee to view all the request with status NEW, PROCESSING, COMPLETE.	A
F 5.2	The system shall display details like Patient Full Name, Age, Blood Group Name, Quantity in a tabular format.	A
F 5.3	The system will provide a drop down for the Blood Bank employee to change the status of the request manually while it is being processed or when the request is completed.	A
F 5.4	The system would display the exact date and time when the request was received	A
F 5.5	Whenever the status of the request is changed by the drop-down button, a notification would be sent to the doctor for the same.	A

User Role	Emergency Service (Ambulance provider/Blood Bank)	
F 6.1	The system would allow the Ambulance Service employee to view all the request sent by the various doctors.	A
F 6.2	The system shall display details like Patient Full Name, Age, Blood Group Name, Pickup Address, Emergency Level in a tabular format.	A
F 6.3	The system will provide a drop down for the Ambulance Service employee to change the status of the request manually while it is being processed or when the request is completed.	A
F 6.4	The system would display the exact date and time when the request was received	A
F 6.5	Whenever the status of the request is changed by the drop-down button, a notification would be sent to the doctor as well as the patient	A

### 3.4. Non-Functional Requirements

ID	Nonfunctional Requirement Statements	ST
<b>OPERATION Requirements:</b> How well does the system perform for daily use?		
	<b>Security Access</b>	
N-SA1	The system shall incorporate a database with proper unique key constraints to not allow redundancies.	A
N-SA2	Patients history and details shall be kept confidential and should not be accessed by anyone, unless requested by the Doctor.	A
N-SA3	The application shall be secured by the security framework when transferring any private information regarding customers	A
N-SA4	The system shall allow all the users to login concurrently and work on their specific areas.	A
N-SA5	Password should be between 8 to 16 characters in length, must contain at least one letter and one number, must contain at least one alphanumeric character.	A
<b>Availability</b>		
N-AVL1	The system shall be available to the users at almost 99% of the time.	A
<b>Efficiency</b>		
N-EFC1	The query run time/ retrieval time of the system shall be within 2 milliseconds	A
N-EFC2	The system shall allow 1million users to use simultaneously at any time.	A
<b>Integrity</b>		
N-INT1	The system shall retrieve all the patient details accurately without any errors	A
N-INT2	The system shall allow only one unique username and password set.	A
N-INT3	The system shall give appropriate warning messages for invalid inputs.	A
<b>Reliability</b>		
N-RLBT1	The system shall have a complete user friendly interface.	A
N-RLBT2	The system shall provide IT support always.	A
<b>Survivability</b>		
N-SRV1	The system shall have a backup to the data that is stored in the system, and the system keeps performing data backup for every three days.	A

<b>Usability</b>		
N-USBT1	There should be clear navigation between each screen	A
N-USBT2	The application shall have Help/FAQs on every screen and every page.	A
N-USBT3	No user should face any trouble with the user interface or find it difficult to navigate between screens	A
<b>Supportability</b>		
N-SPRT1	The help desk should be active 24*7, 365 days a year to help users facing any issues.	A
N-SPRT2	The IT support desk should be active 24*7, 365 days to fix any glitches and to help system be active always.	A

**REVISION Requirements: How easy is it to correct errors and add functions?**

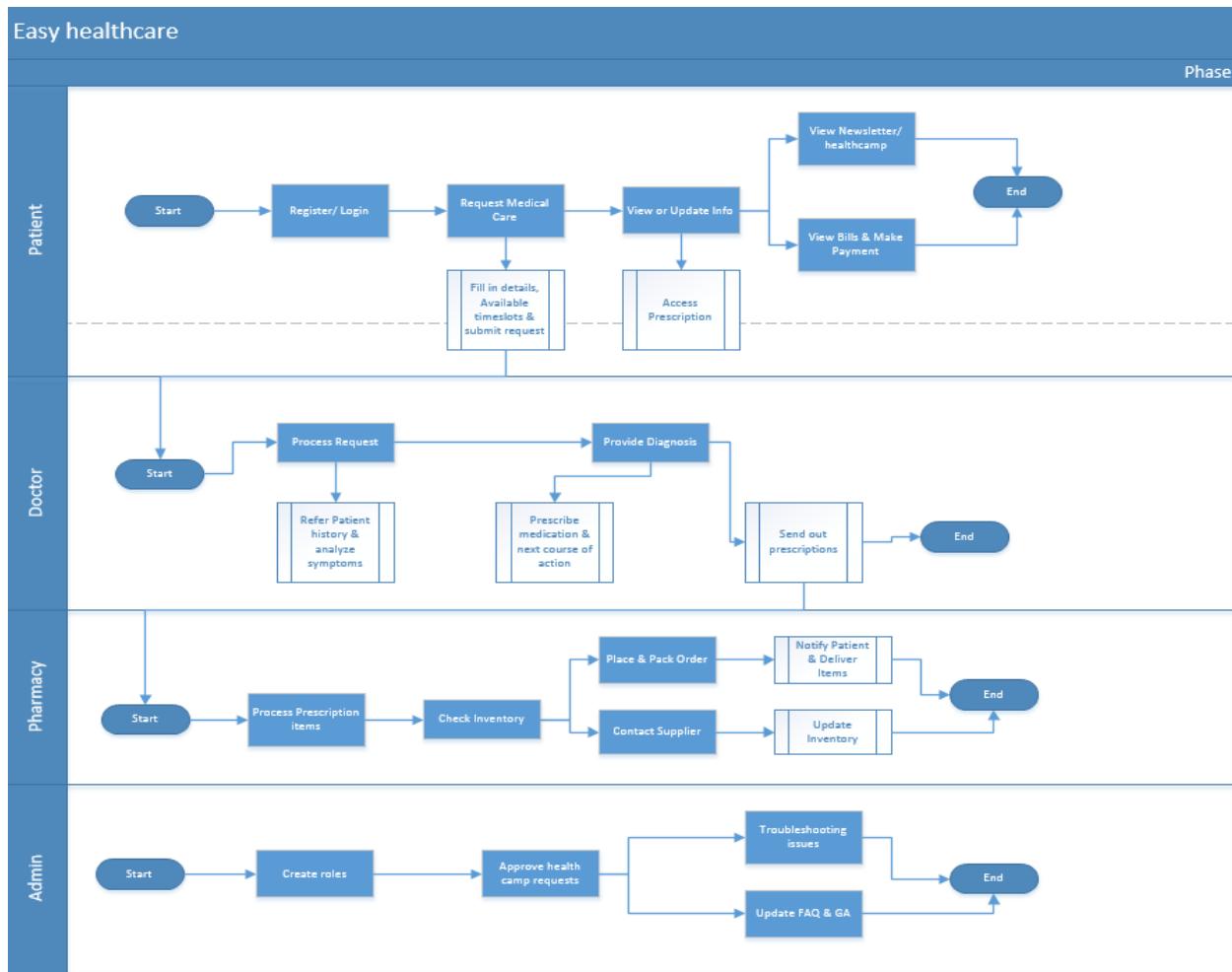
<b>Maintainability</b>		
N-MNTB1	The system shall make modifications of every record entered or updated.	A
<b>Scalability</b>		
N-SCL1	The system shall be flexible to handle any upgrades made to it in the future/ adding new functionalities.	A
<b>Verifiability</b>		
N-VER1	The system shall consider password to be only between 8 to 16 characters in length, must contain at least one letter and one number, must contain at least one alphanumeric character, upon password change request by the user.	A

**TRANSITION Requirements: How easy is it to adapt to changes in the technical environment?**

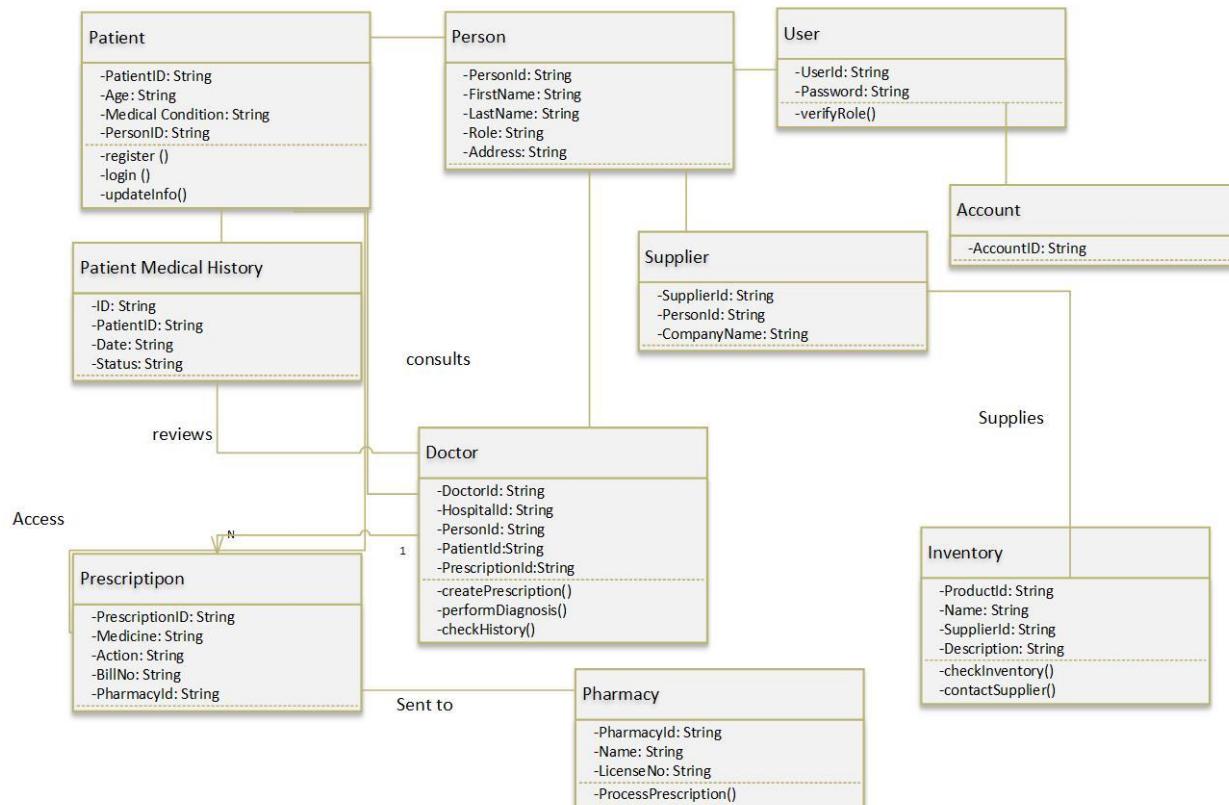
<b>Interoperability</b>		
N-INOP1	The application shall be compatible with all the devices and across various operating systems such as Windows, Linux, and Macintosh.	A
<b>Portability</b>		
N-PORT1	The new system shall have data converted from existing database to a standard data warehouse.	A

## 4. DIAGRAMS AND PROCESS FLOWS

### 4.1. Process Flow Diagram



## 4.2. Class Diagram

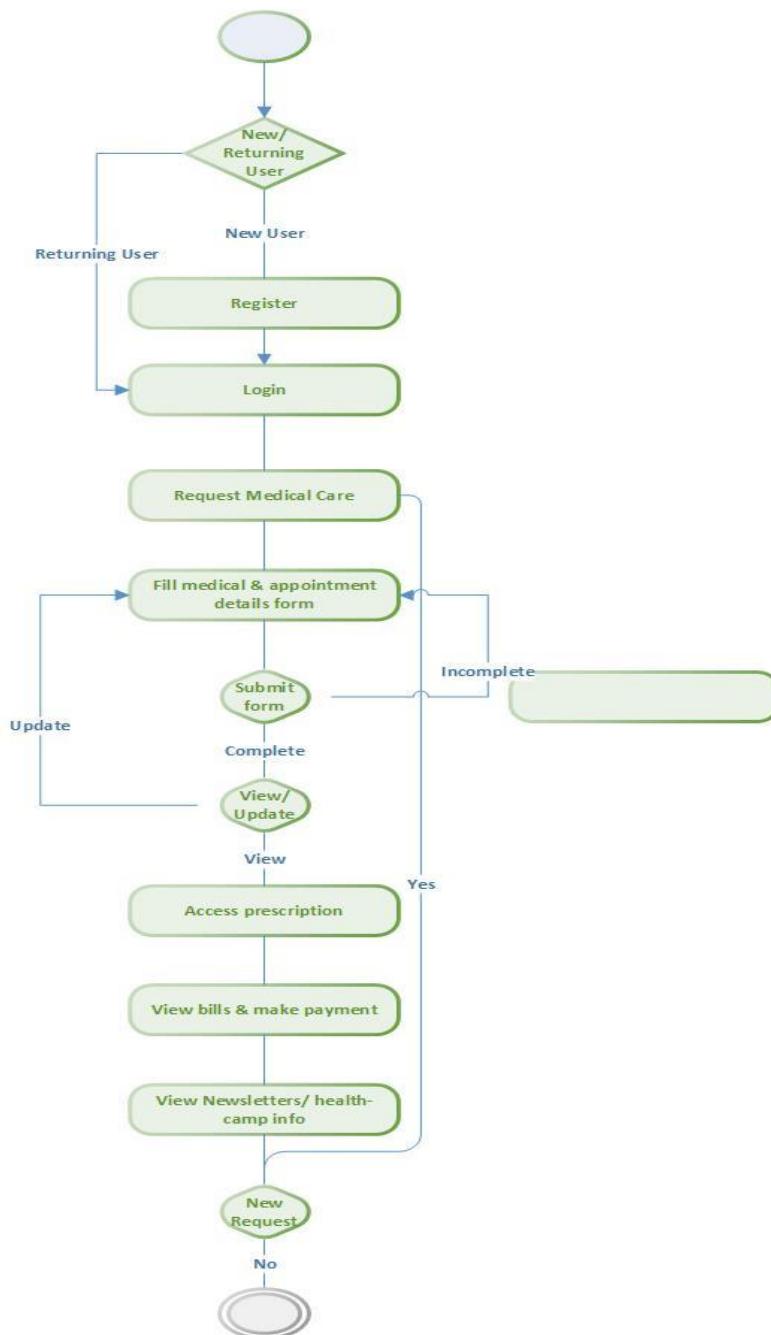


## 4.3. Activity Diagrams

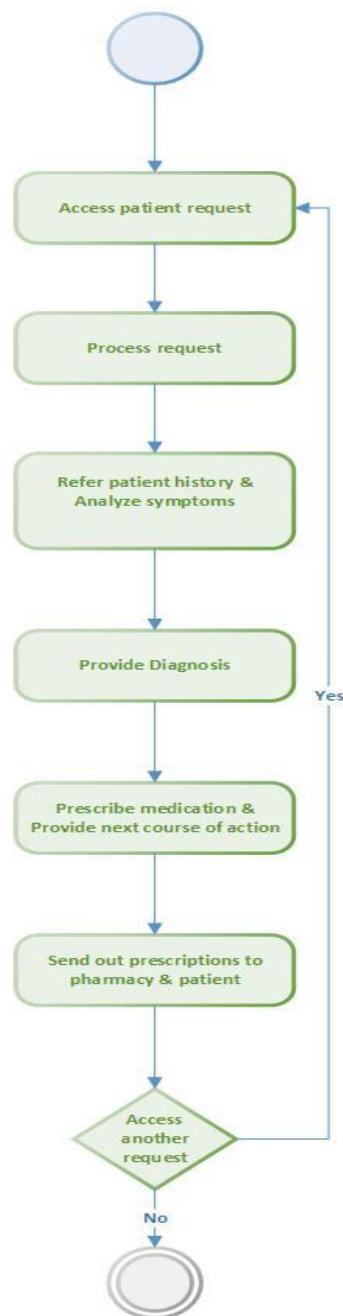
### 4.3.1 Admin



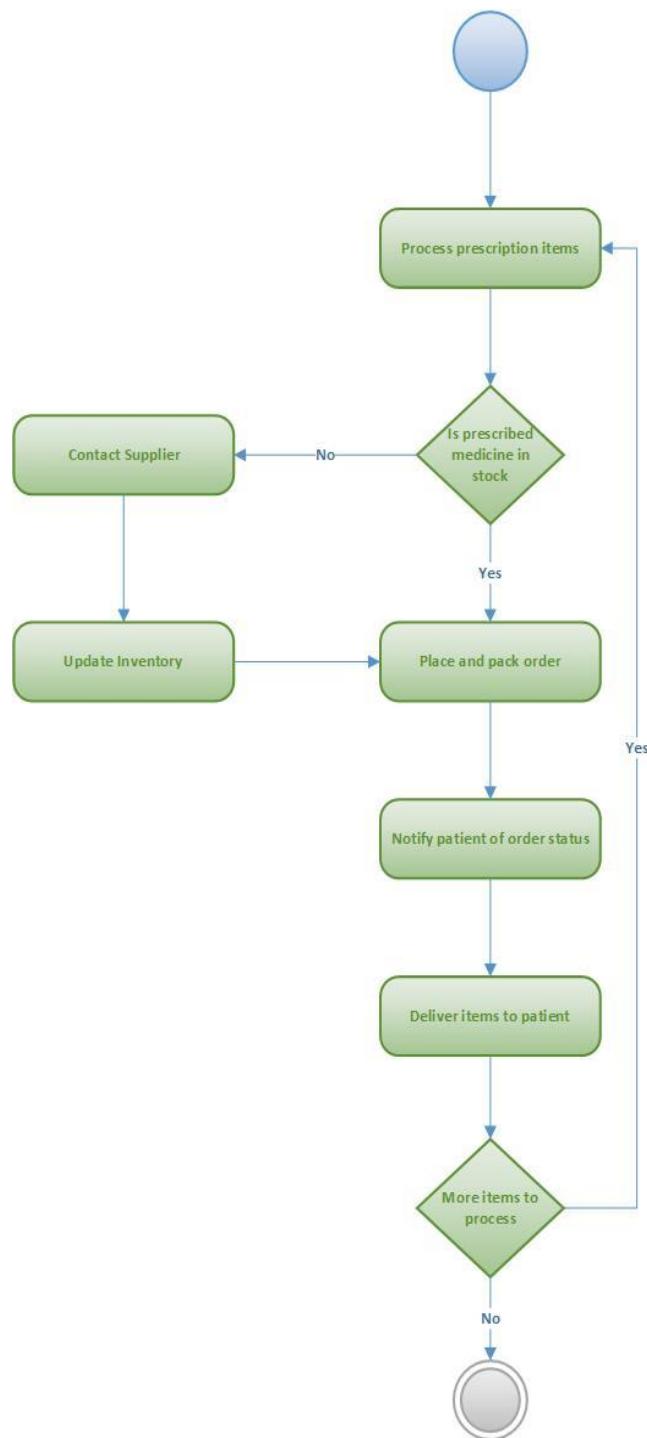
### 4.3.2 Patient



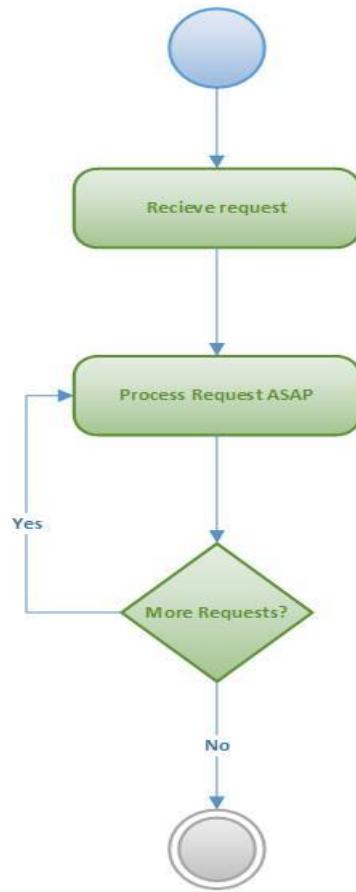
### 4.3.3 Doctor



#### 4.3.4 Pharmacist



#### 4.3.5 Emergency Service Provider



## 5. USER PERSONAS



**Aron Jose**

**Role: Doctor**

**Goals:**

- Accessible by patient most of the time
- Provide consultation to the patients
- Utilize application to serve patients with disabilities or old age ones



**Peter Young**

**Role: patient**

**Goal:**

- Get treatment without much hassle



**Elina**

**Role: Pharmacist**

**Goals:**

- Deliver medicine to the patient's home
- Maintain necessary stock of medicines
- Utilize application to serve patients with disabilities or old age ones



**Julie Cooper**

**Role: Admin**

**Goals:**

- Provide technical support to the users
- Maintain users
- Post and update general information



### **Emergency Service Provider**

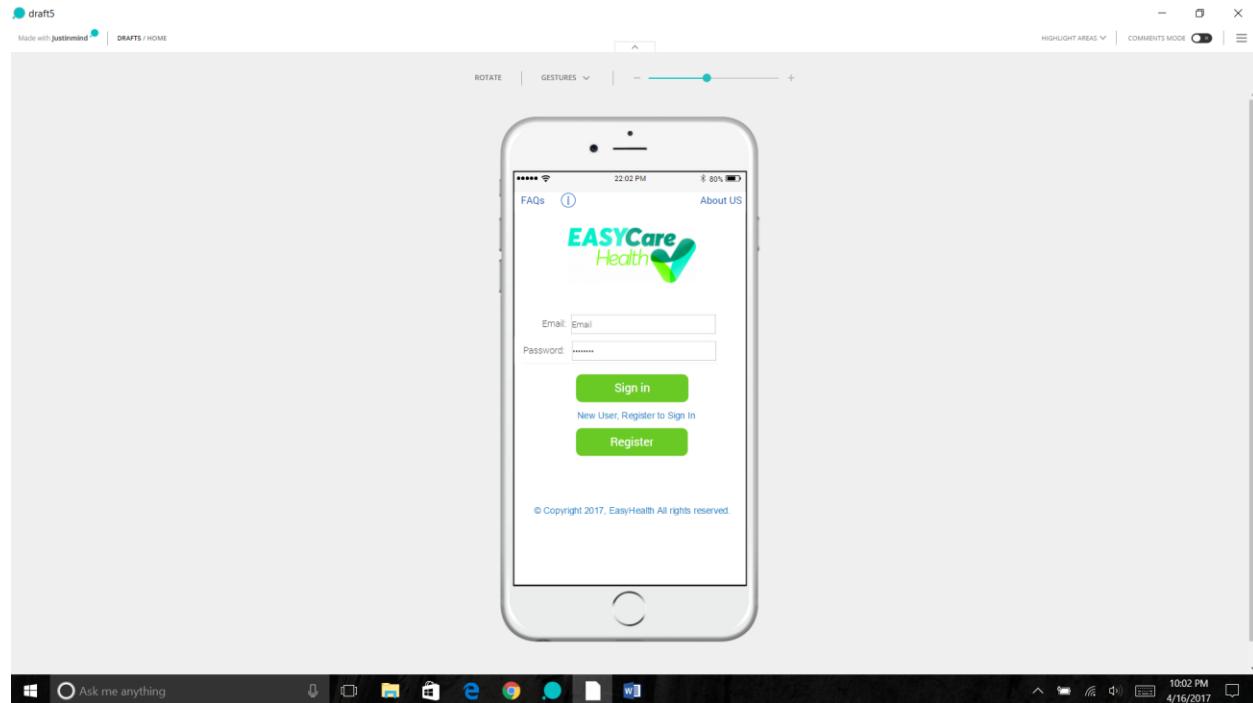
#### **Goal:**

- Receive request from Doctors and act on it asap
- Blood bank and Ambulance

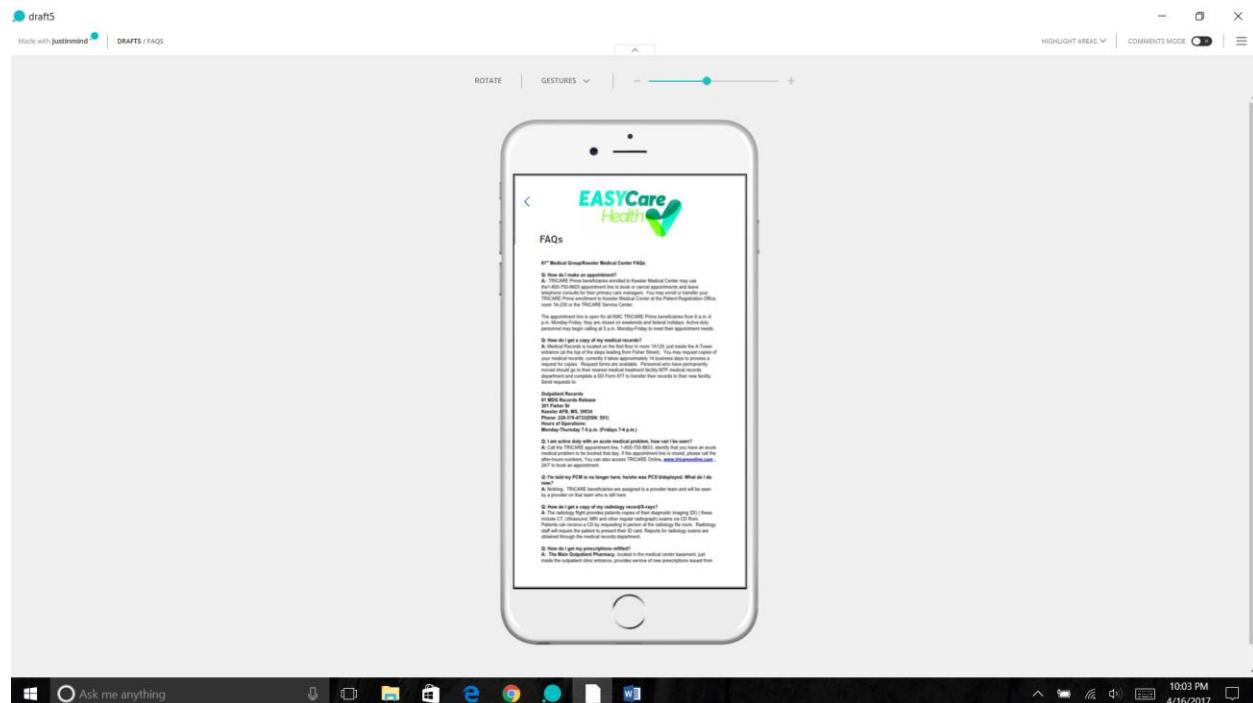
## 6. USER INTERFACE

### 6.1. UI Screenshots

#### Home Page

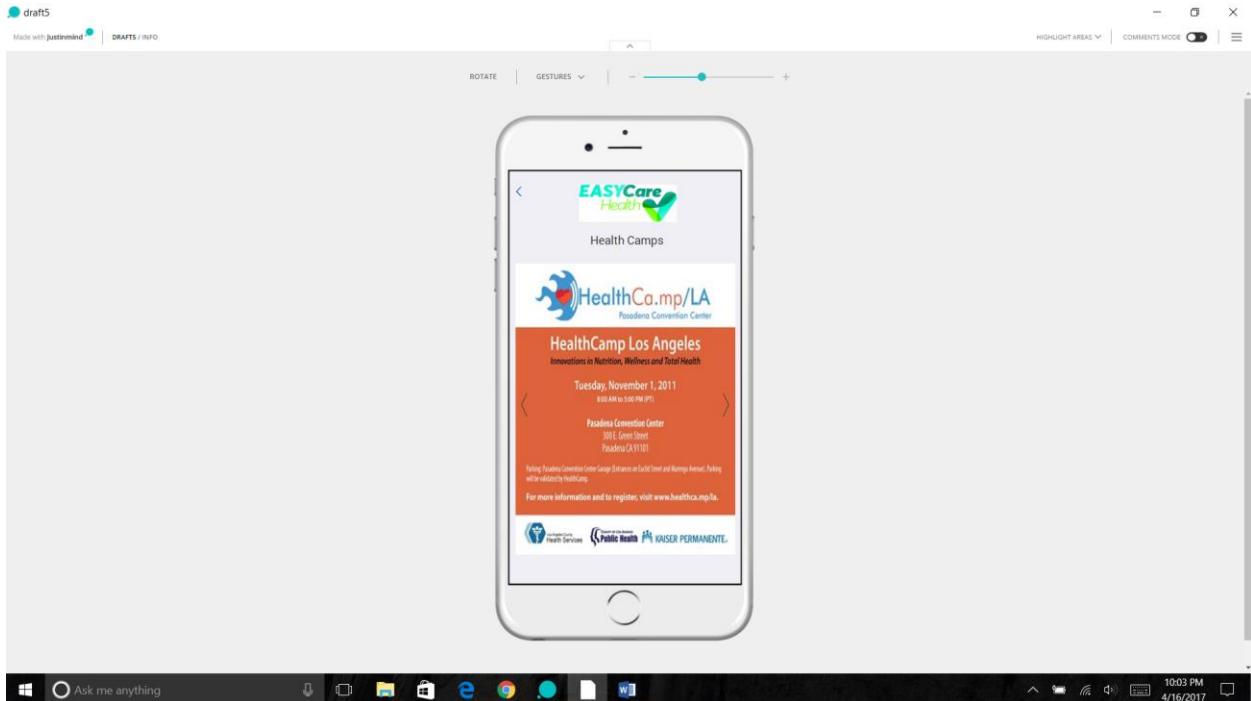


#### FAQs

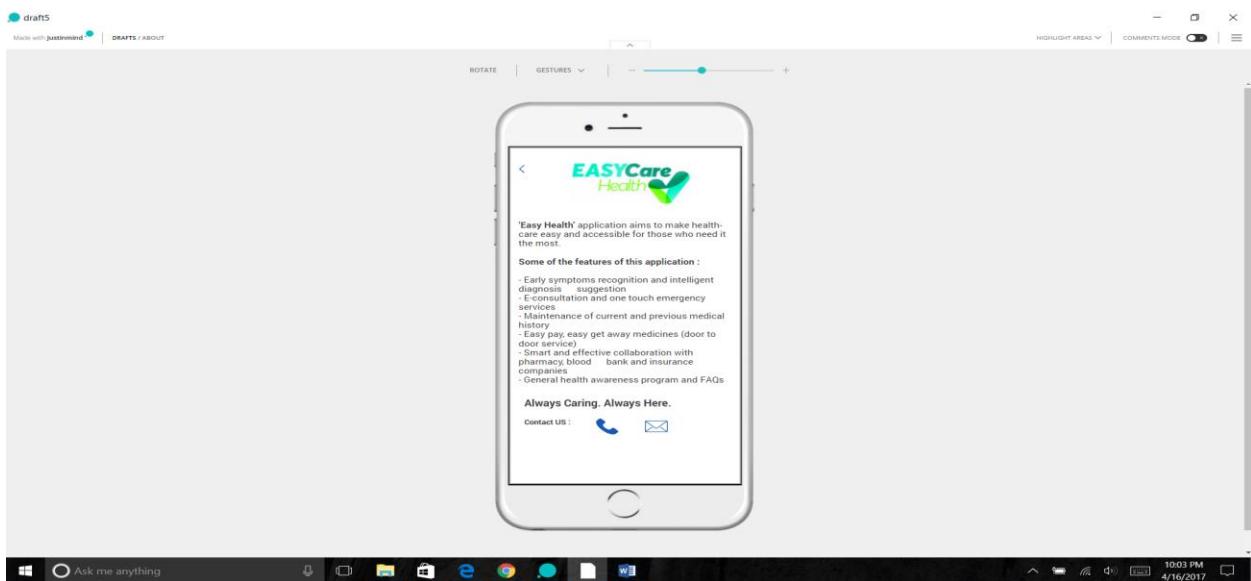


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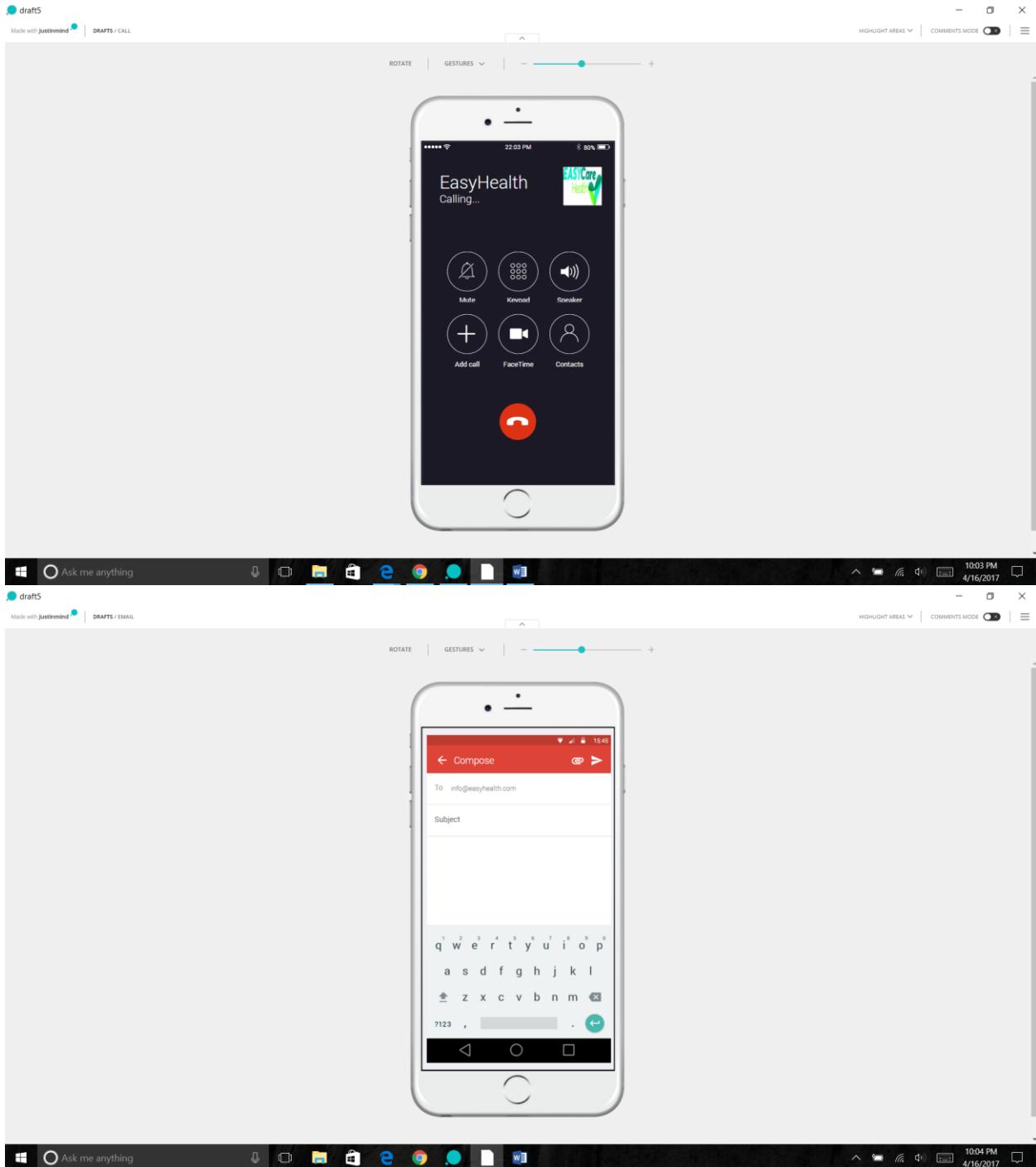
## General Information



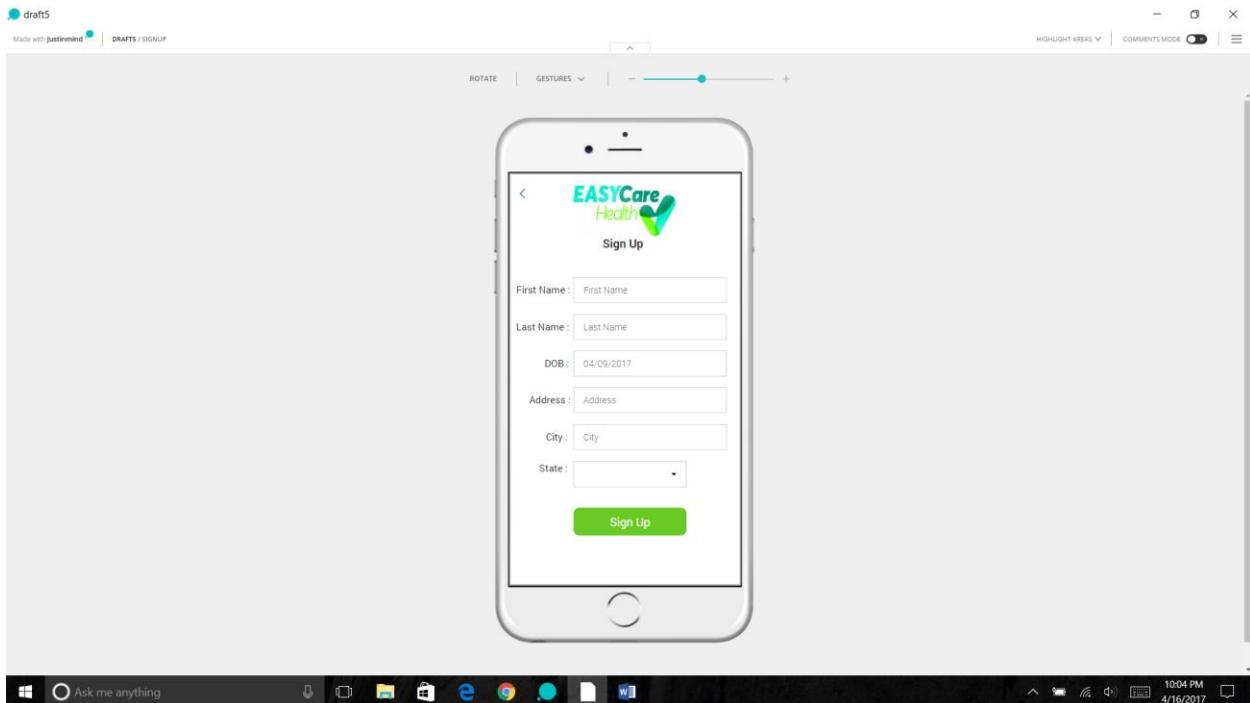
## About us



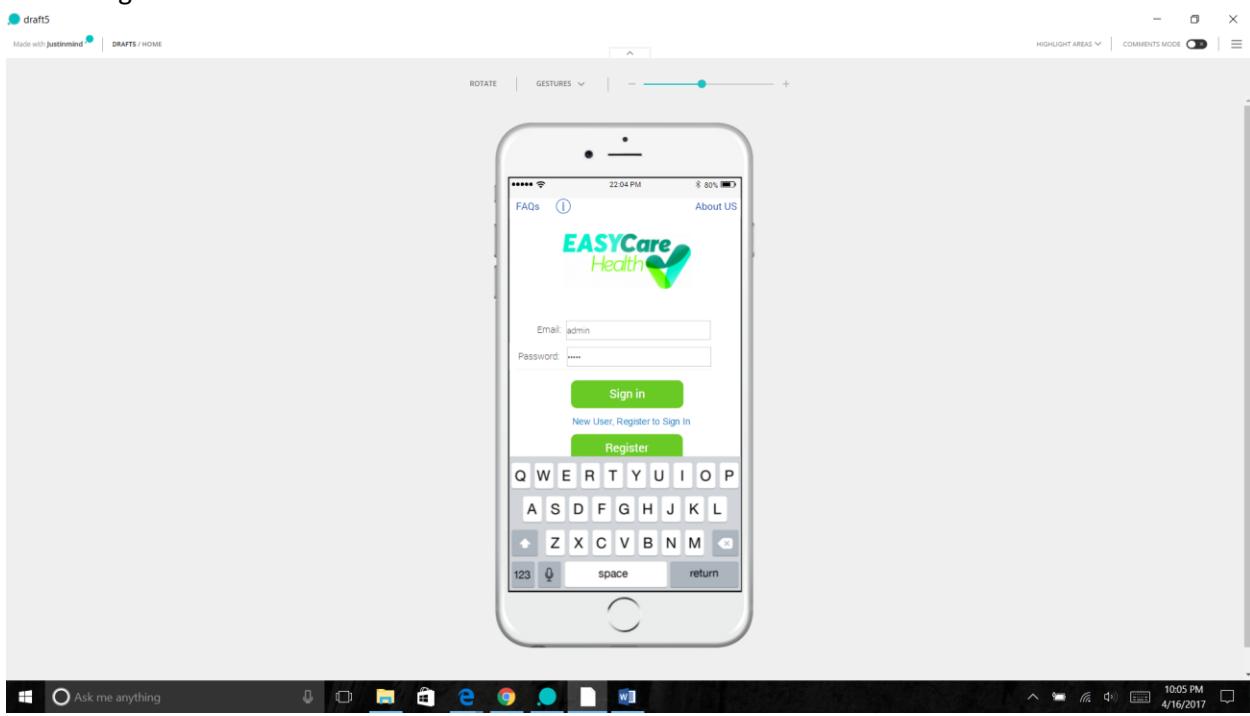
## Contact US



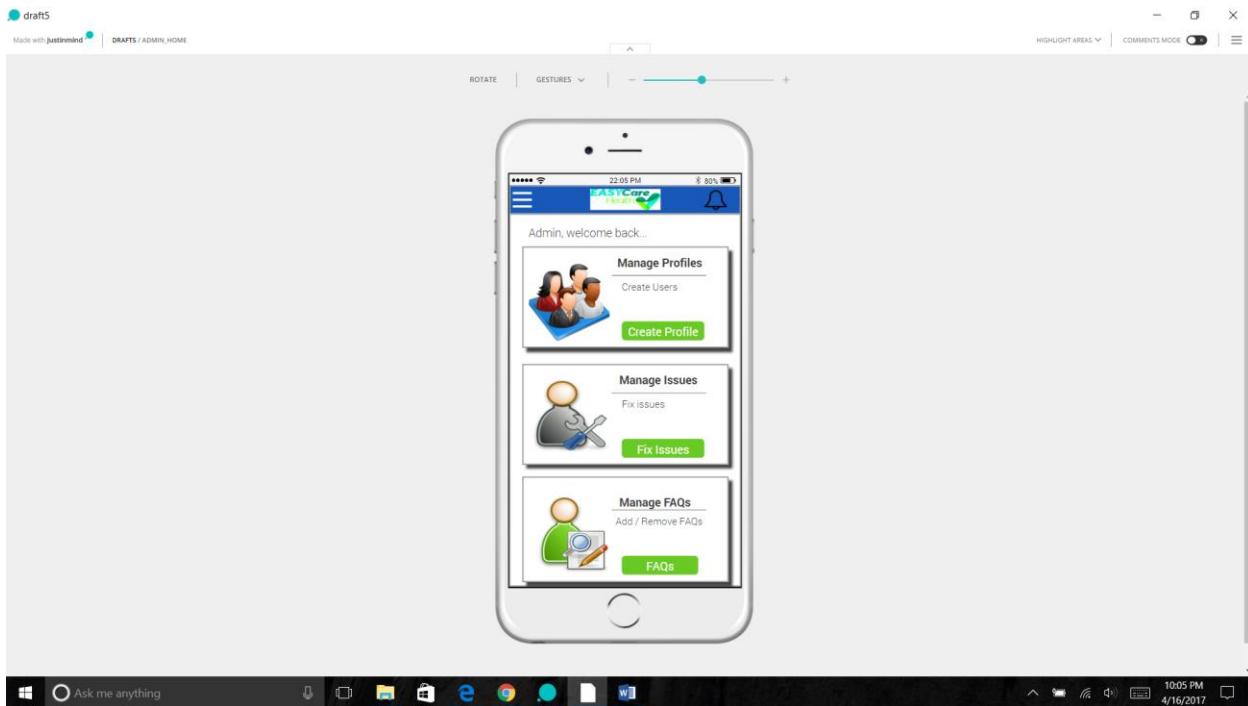
## Register



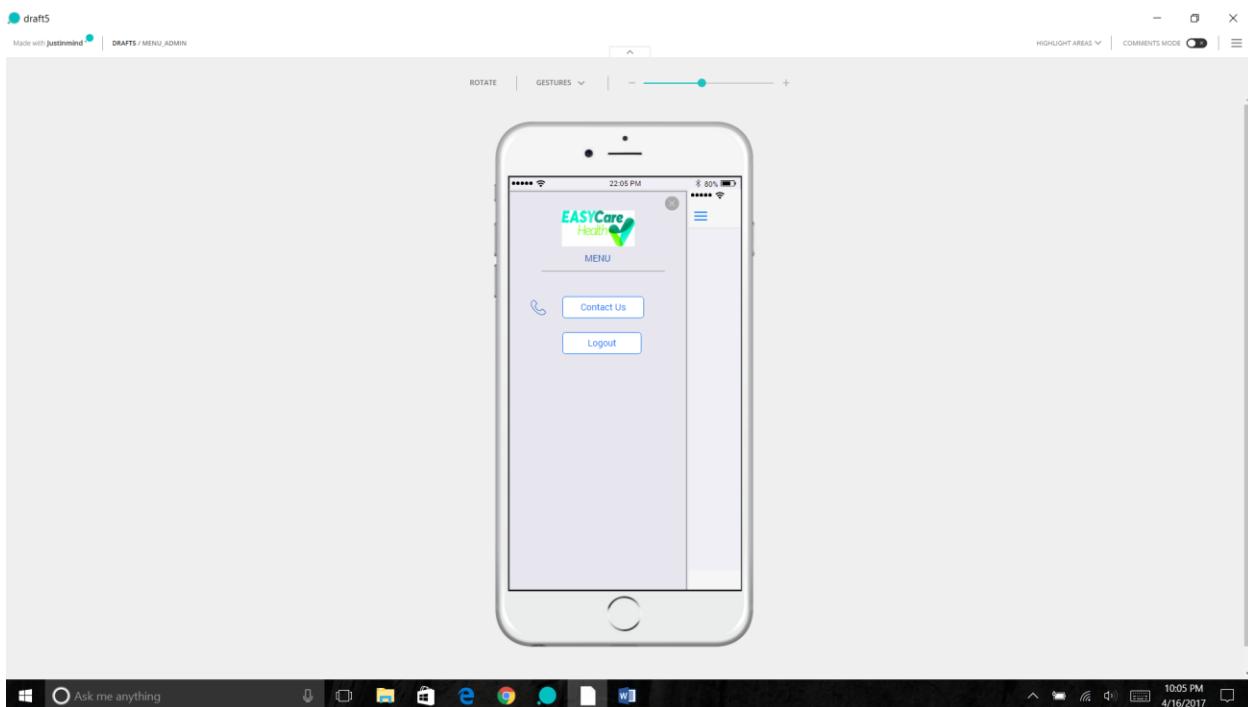
## Admin Login



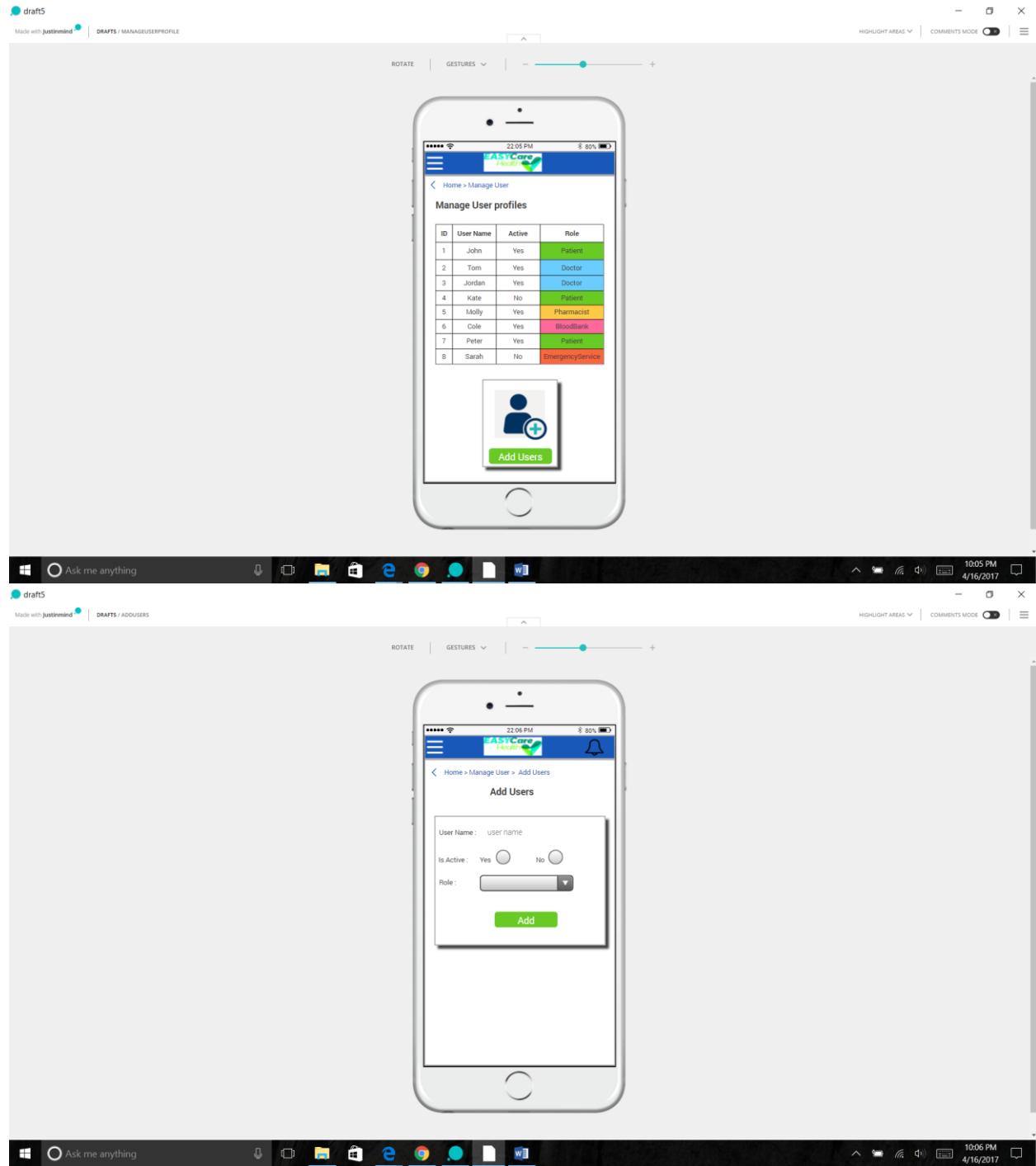
## Admin Home



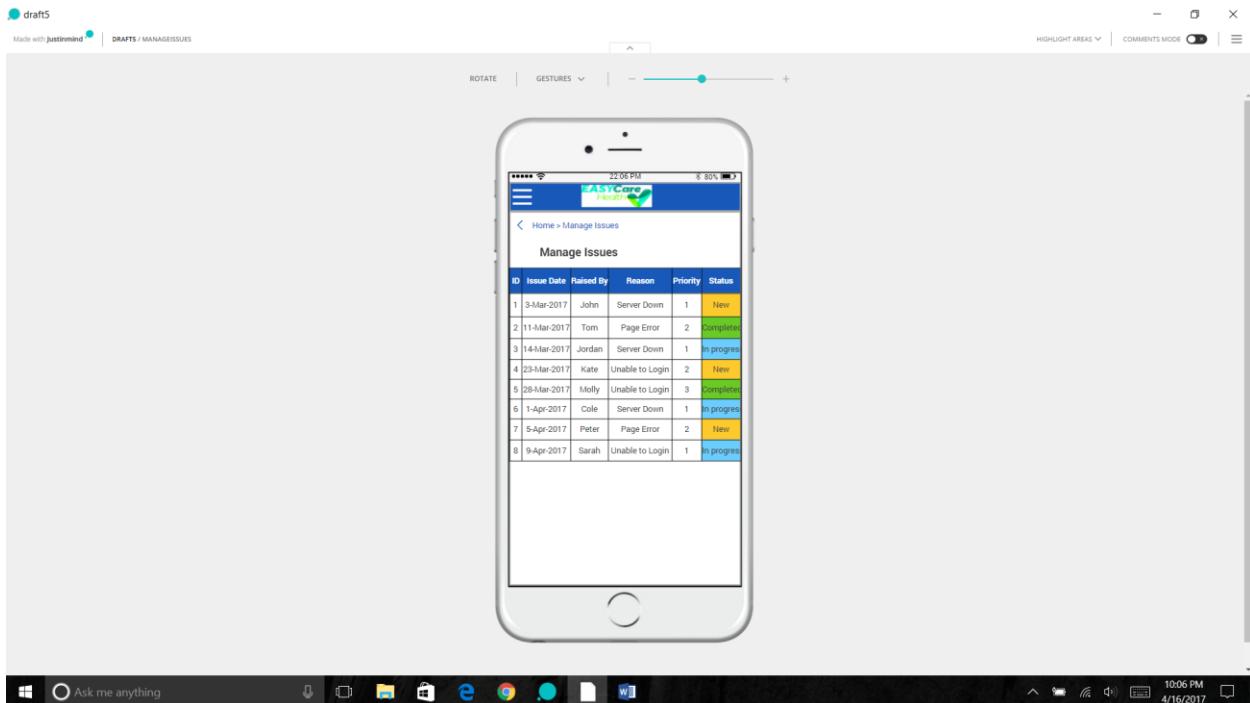
## Menu



## Manage Profiles



## Manage Issues



## Manage FAQs

The image displays two screenshots of a mobile application interface for managing Frequently Asked Questions (FAQs). Both screenshots are taken from a smartphone with a white background and a black border.

**Screenshot 1: Manage FAQs**

This screenshot shows a list of FAQs with columns for ID, FAQ, and Status. The status column uses color coding: green for Published and blue for Saved As Draft. The list includes:

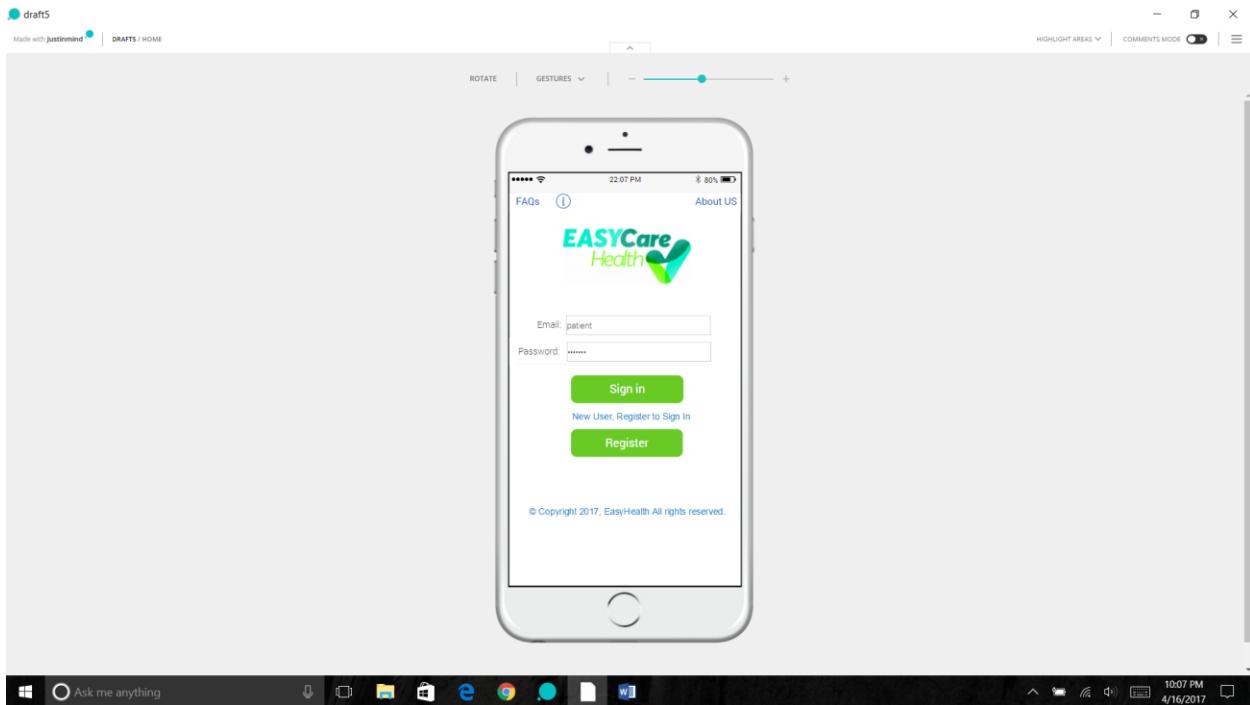
ID	FAQ	Status
1	Campus Overview	Published
2	Directions	Saved As Draft
3	Hotels Near by	Saved As Draft
4	Article 1	Published
5	Registration & Admission	Saved As Draft
6	Visitors Information	Saved As Draft
7	Department Phone Listing	Published
8	Co-pay Information	Saved As Draft

Below the list is a large button labeled "FAQ" with a circular icon, and a smaller "Add" button at the bottom.

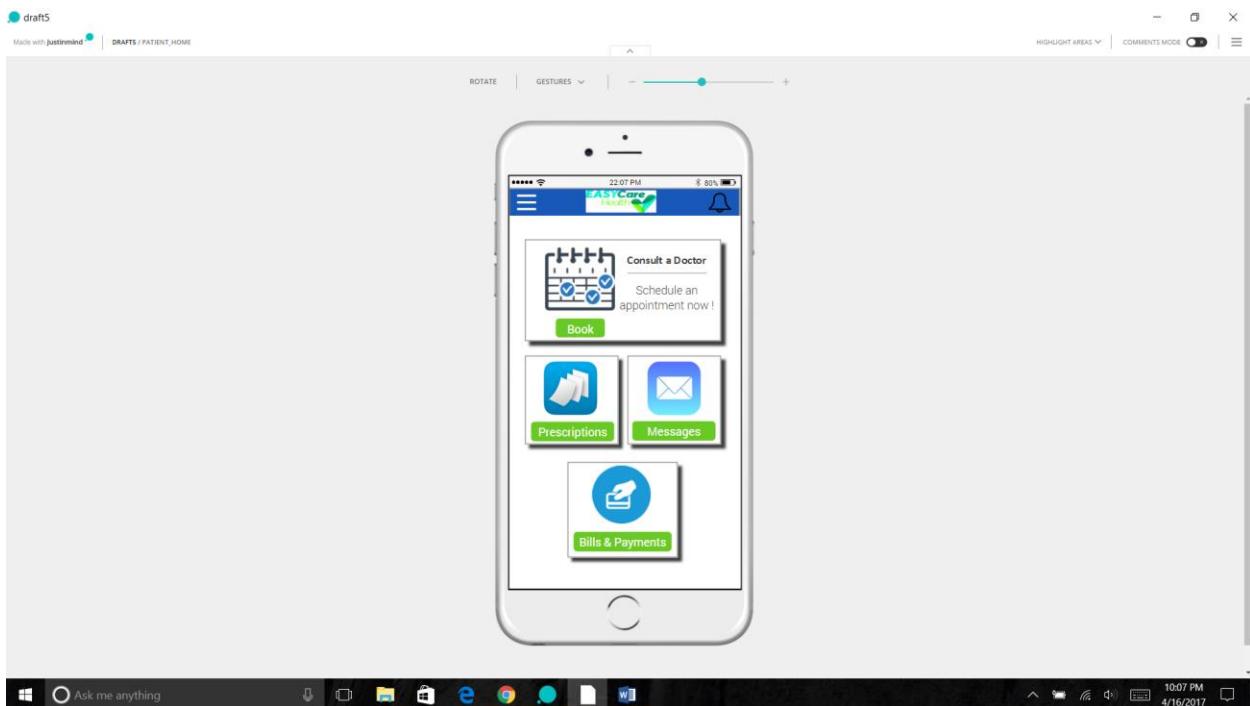
**Screenshot 2: Add FAQs**

This screenshot shows a form for adding a new FAQ. It includes fields for Title (with placeholder "title"), Http URL (with placeholder "www.easyHcare.com"), and Action (a dropdown menu). A large "Add" button is located at the bottom of the form.

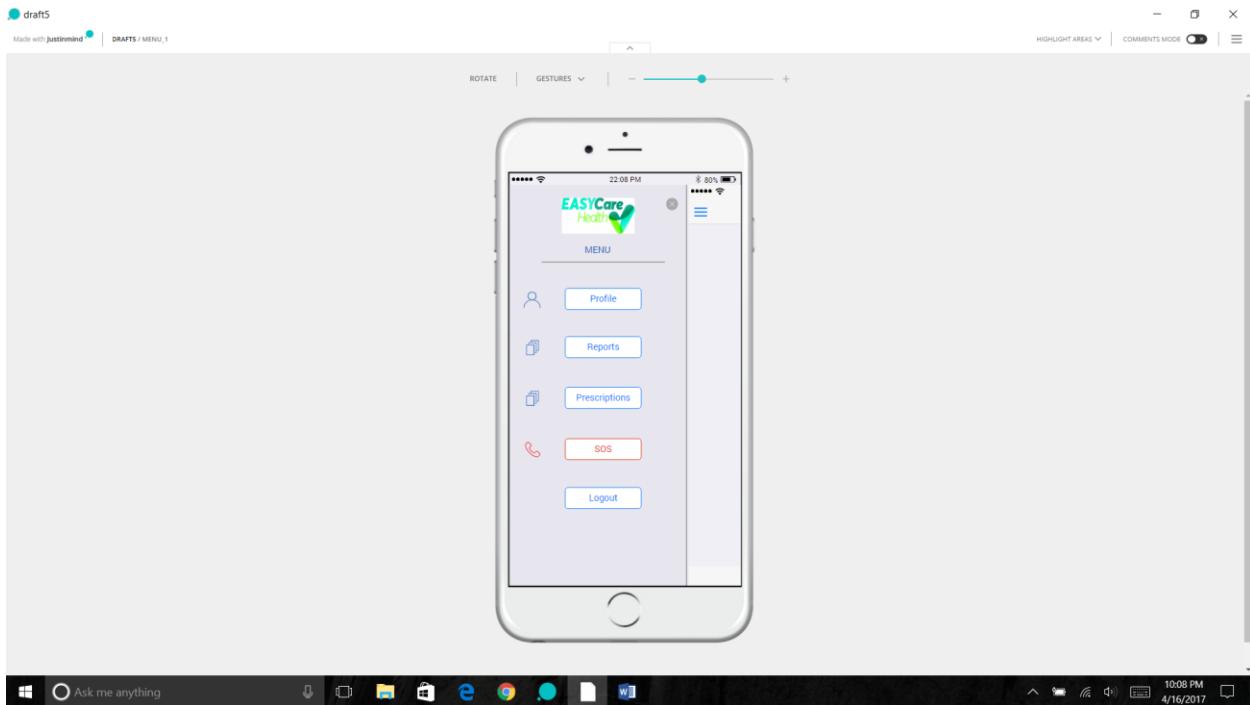
## Patient Login



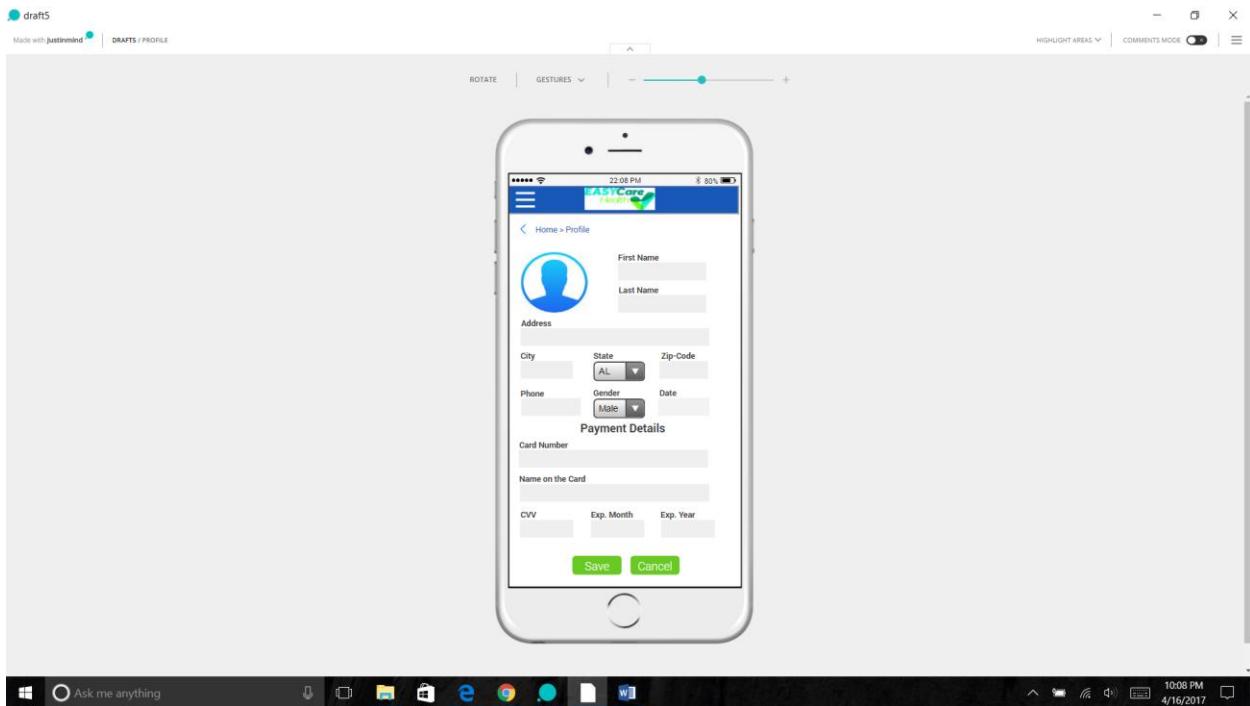
## Patient Home



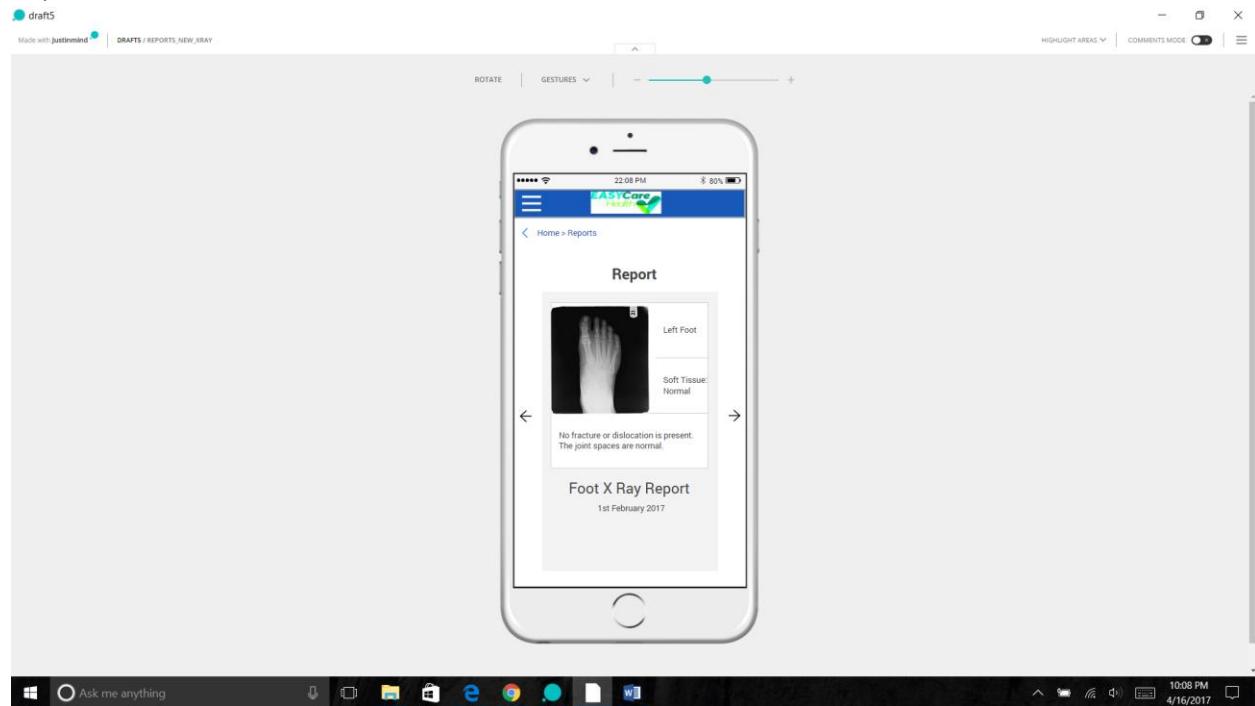
## Menu bar



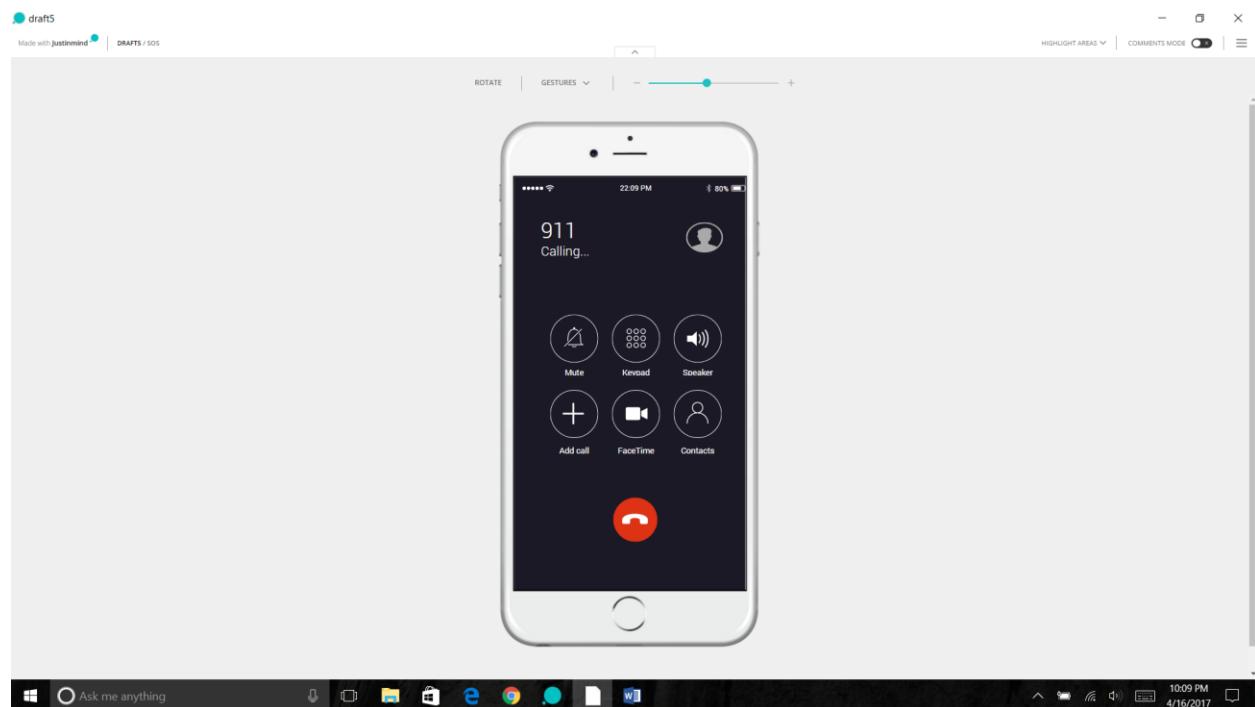
## Profile



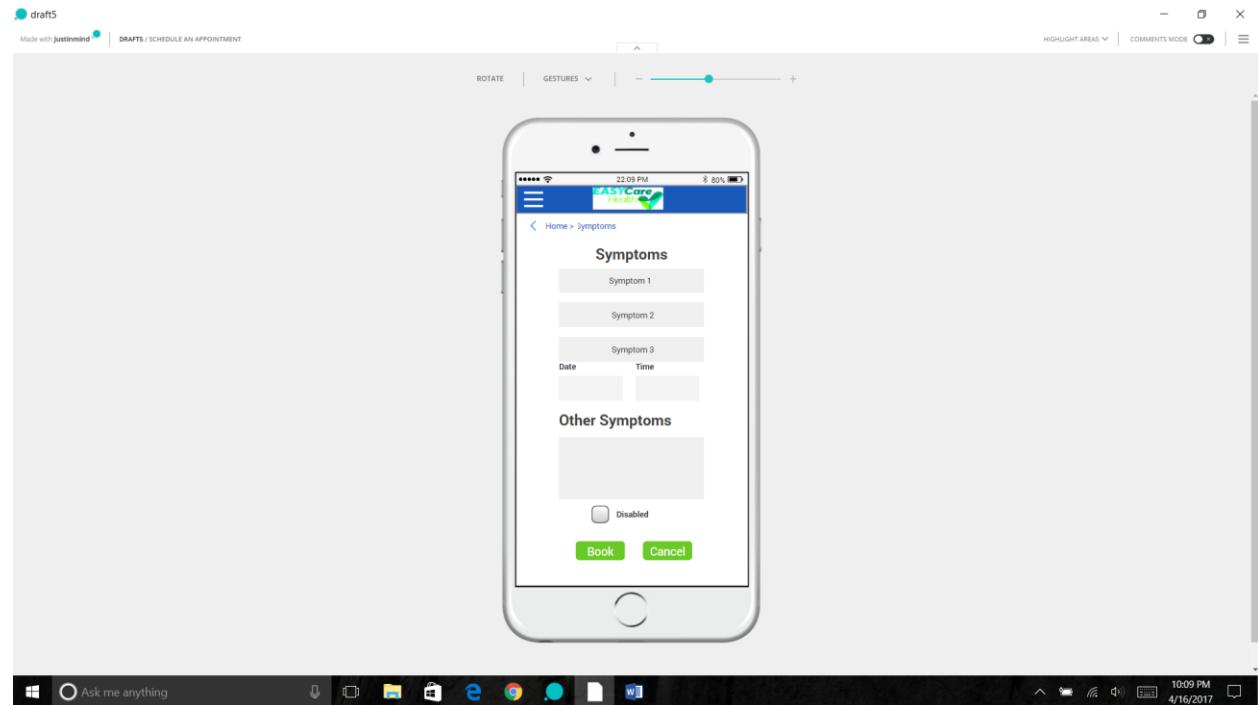
## Reports



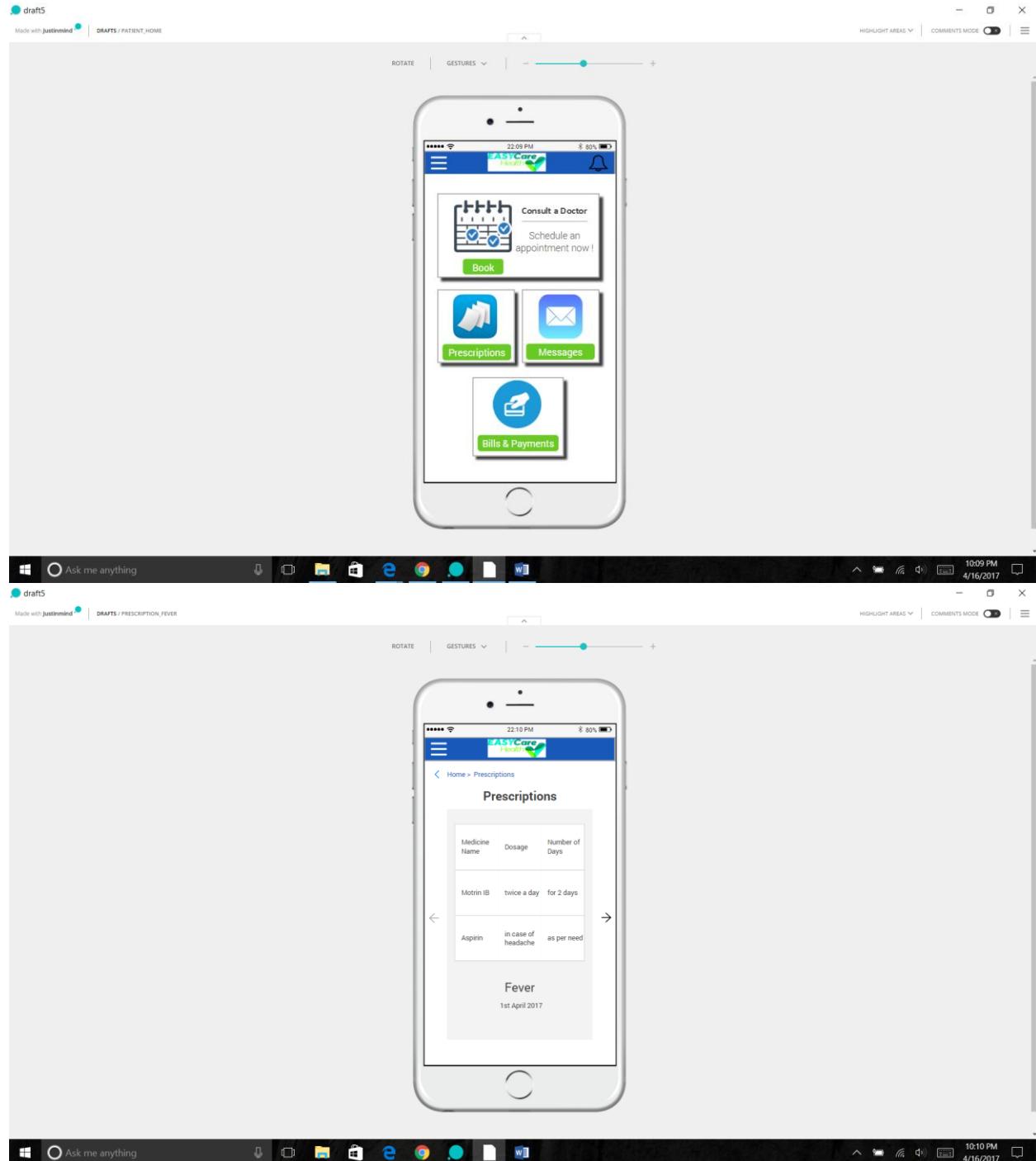
## SOS



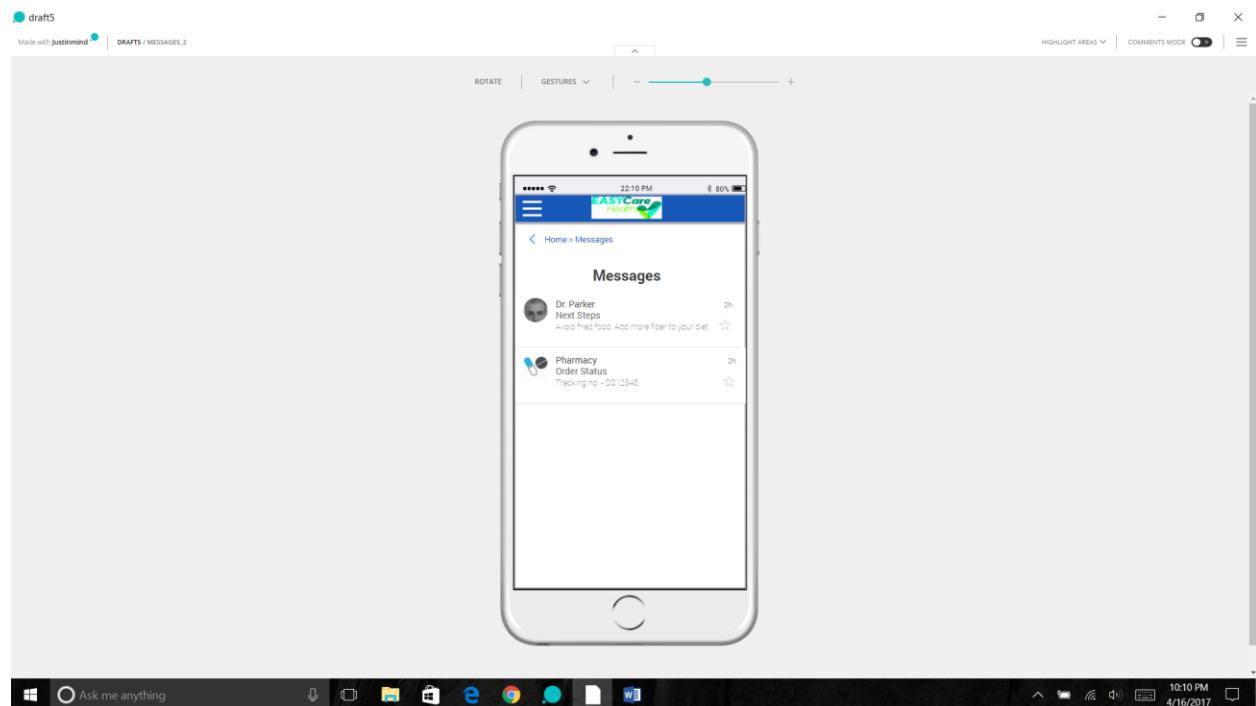
## Consult a Doctor, Schedule an appointment



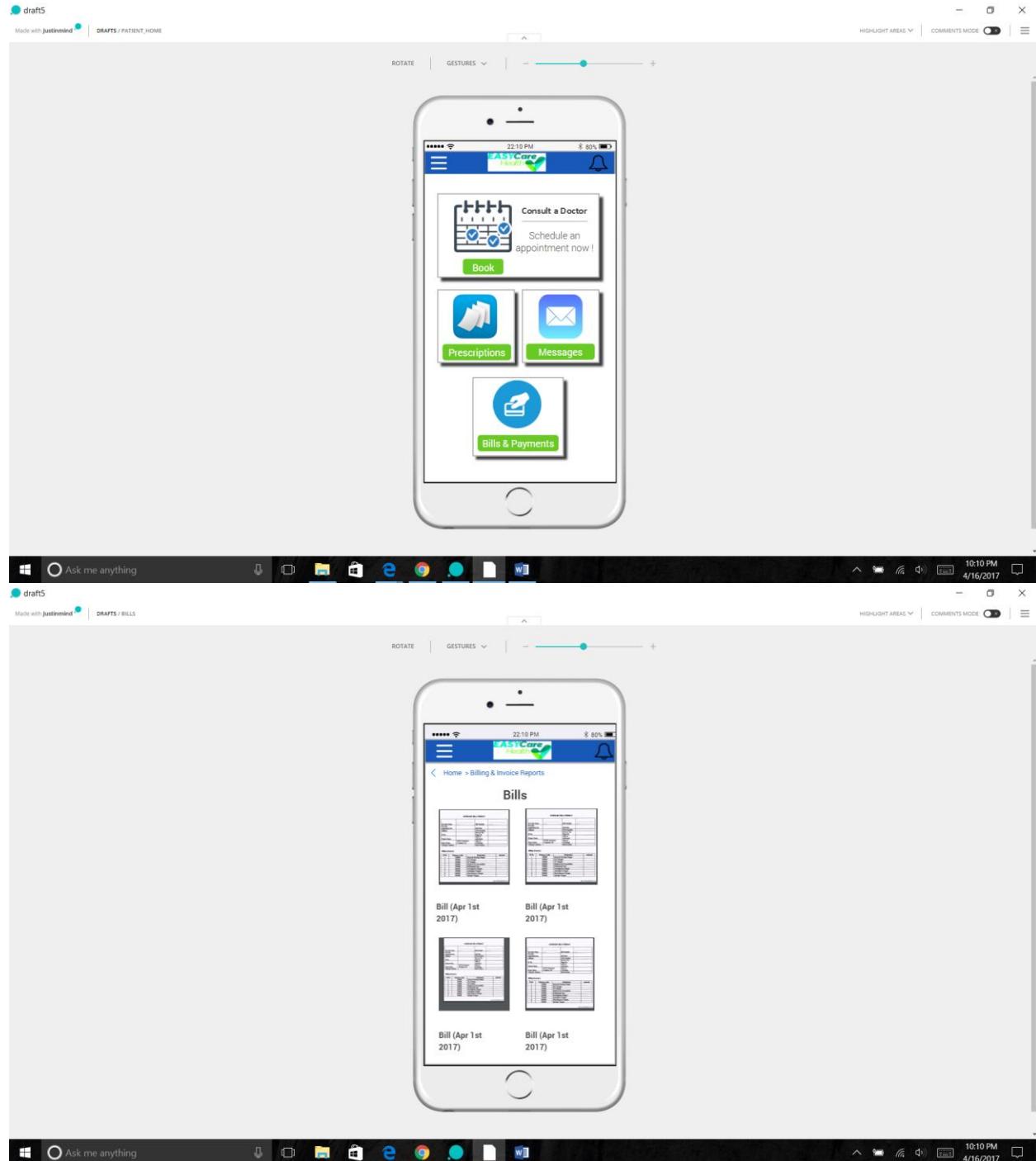
## Prescription



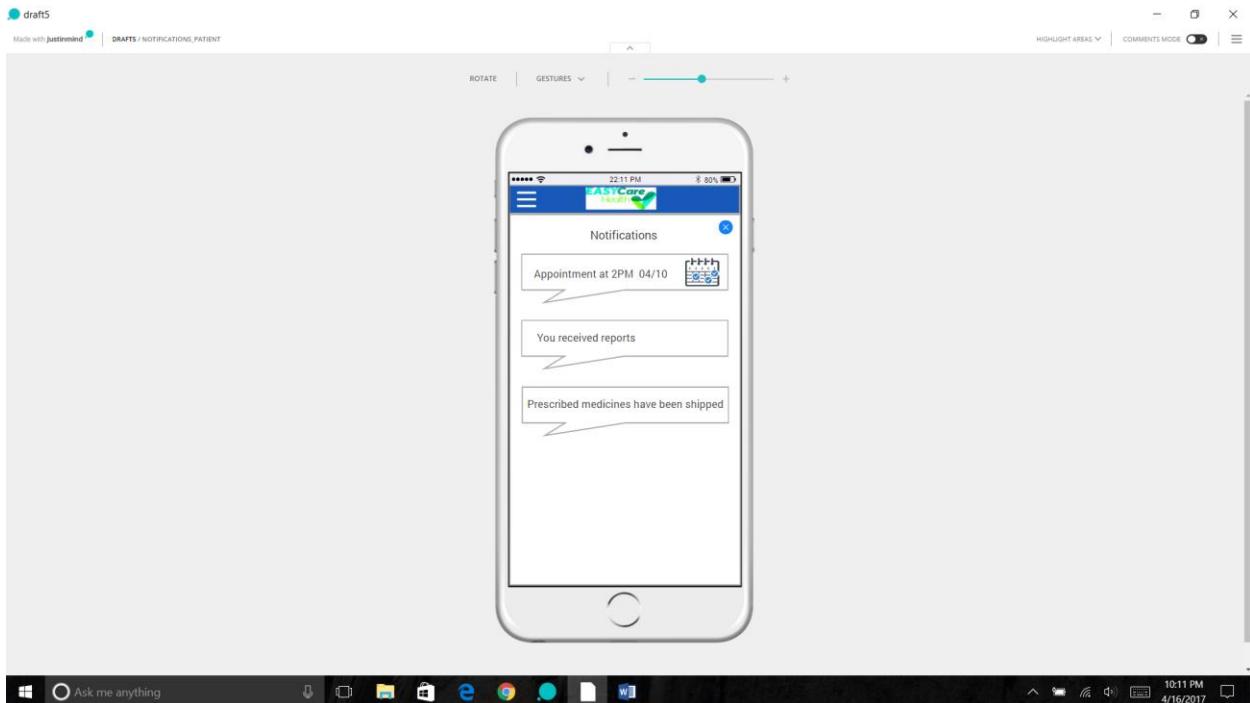
## Messages



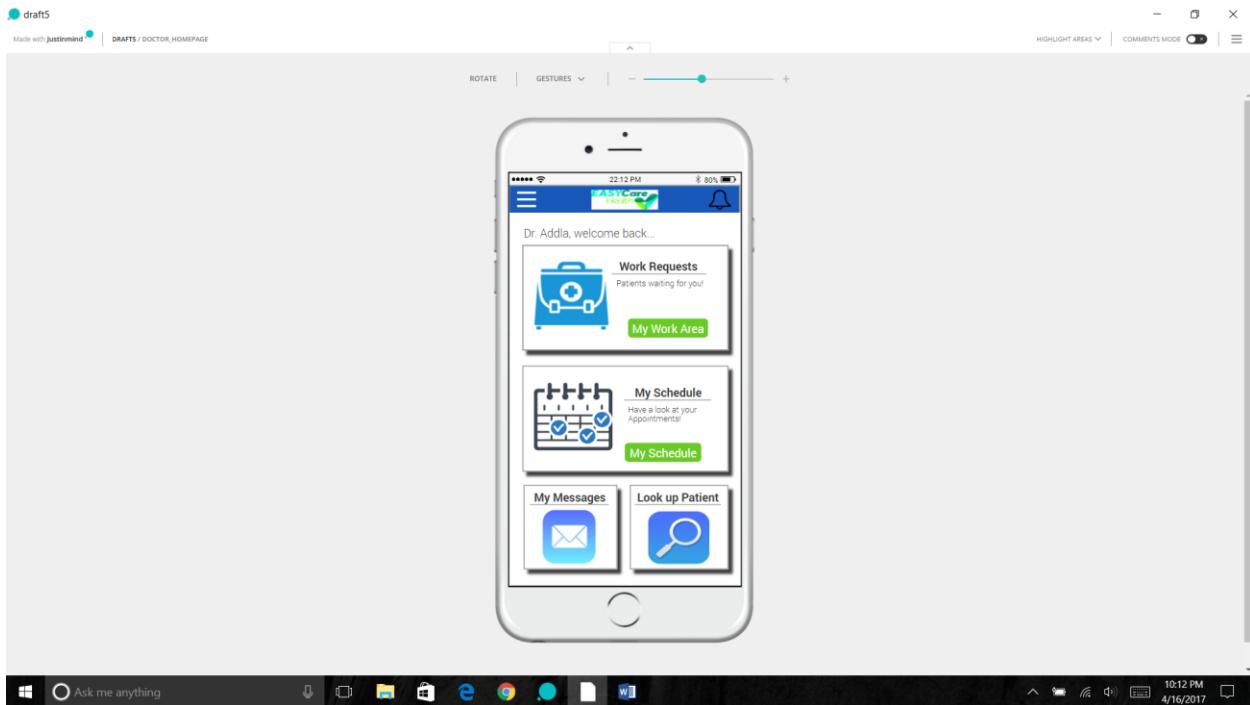
## Bills and Payment



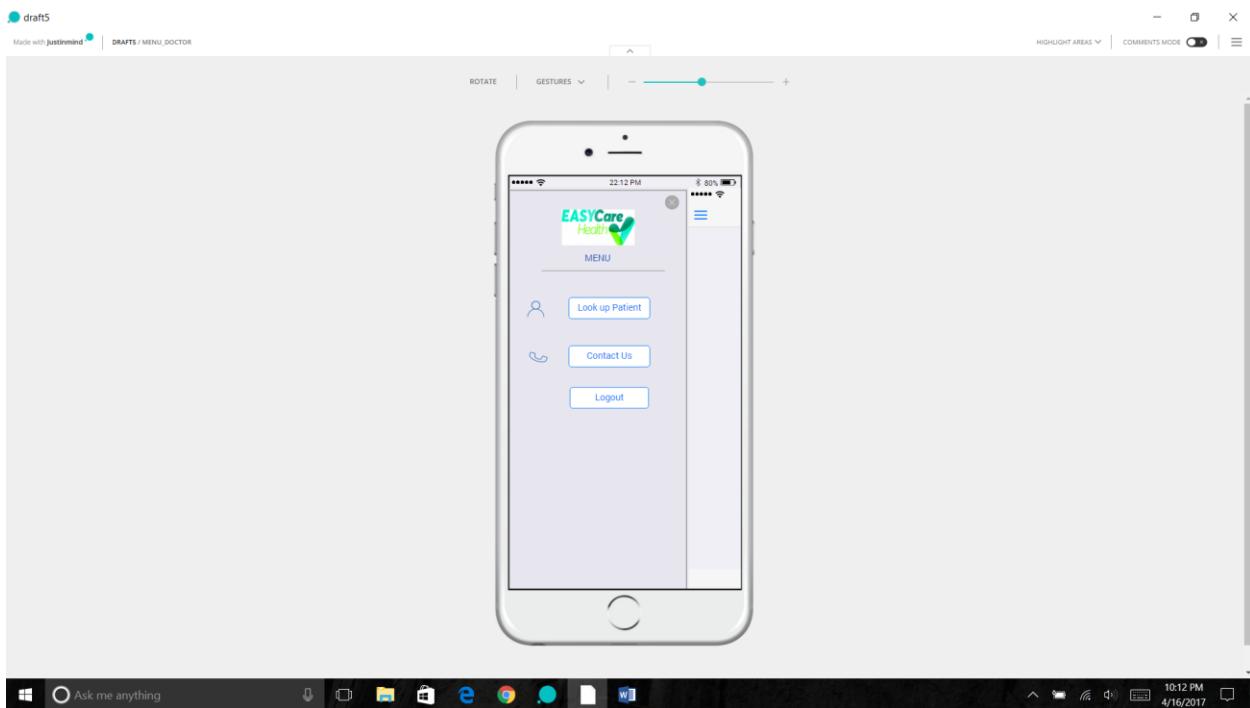
## Notification



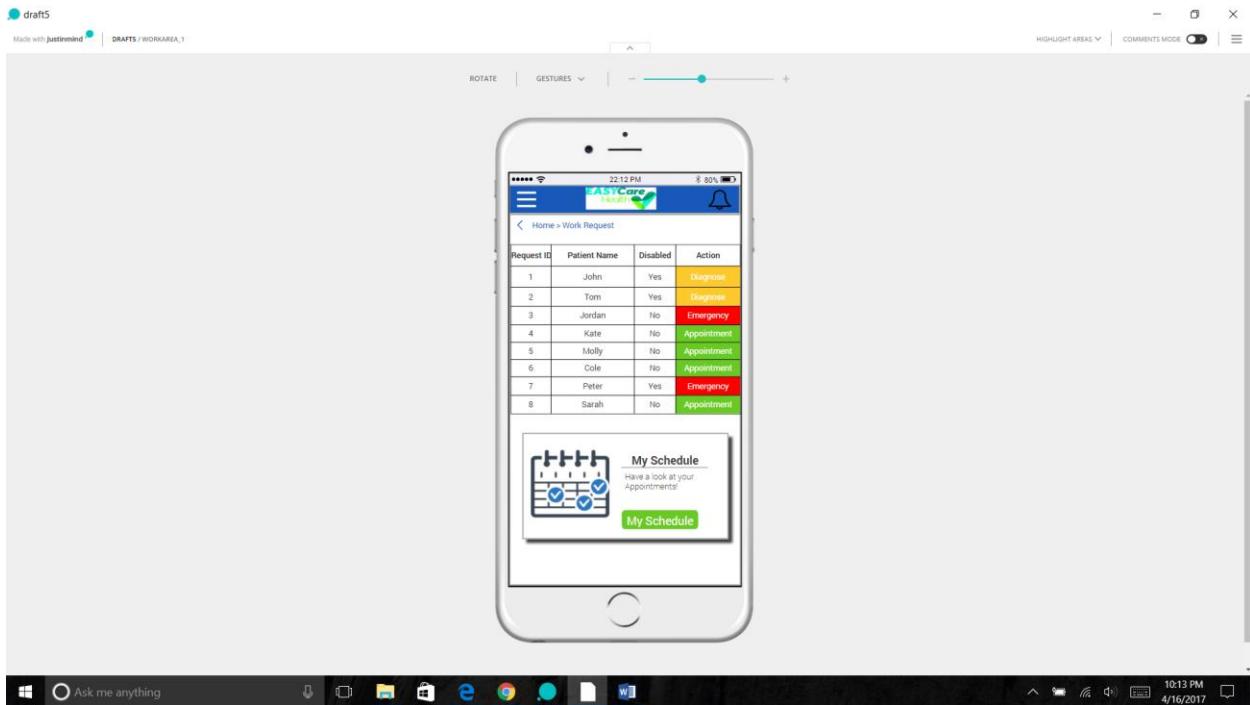
## Doctor Home Page



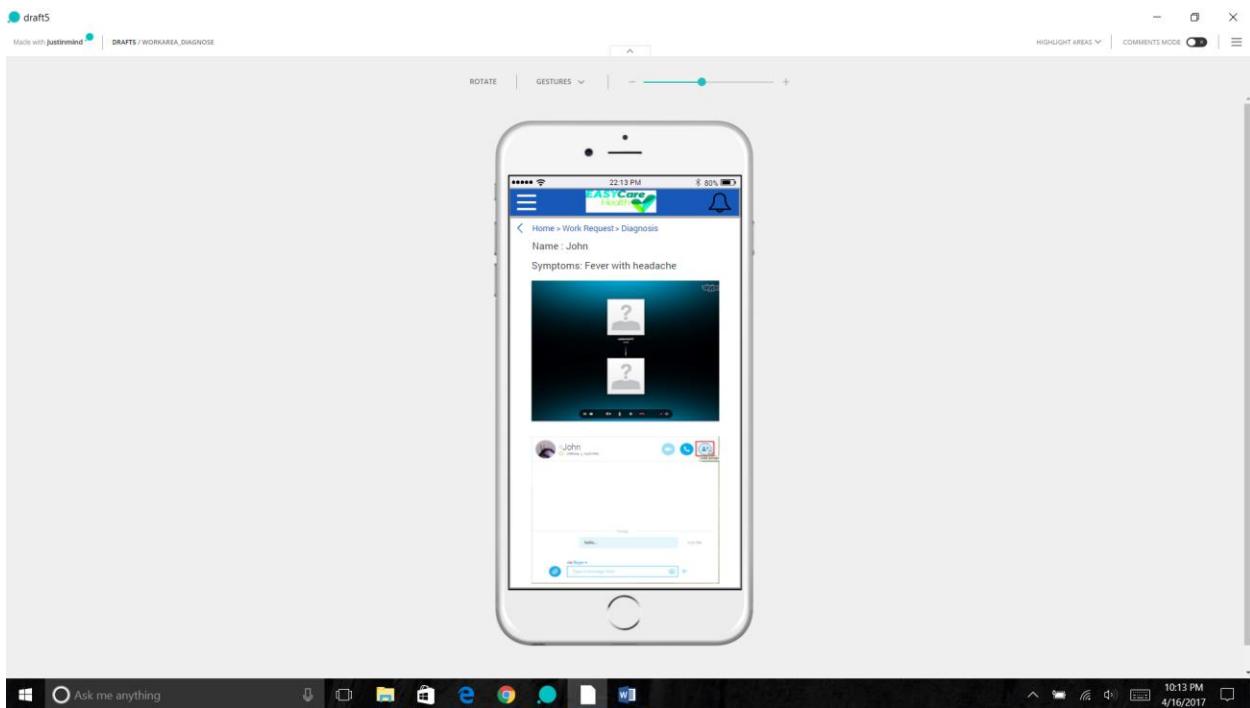
## Menu Bar



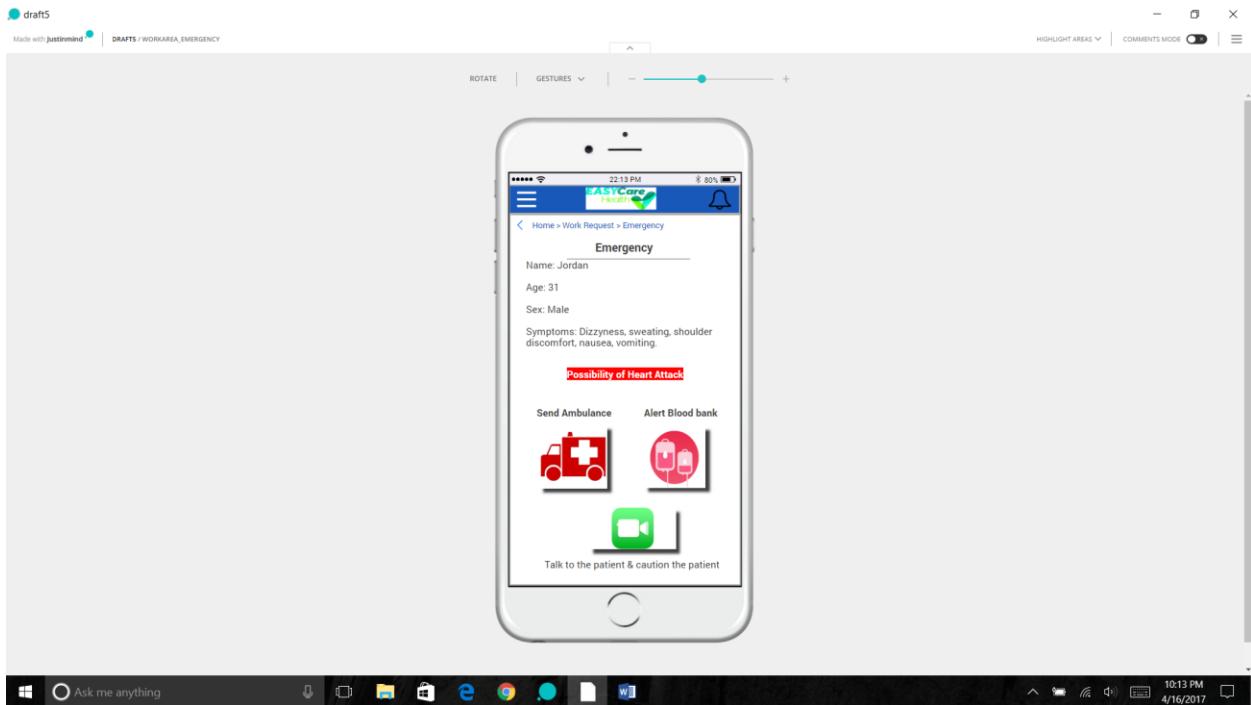
## Work Requests



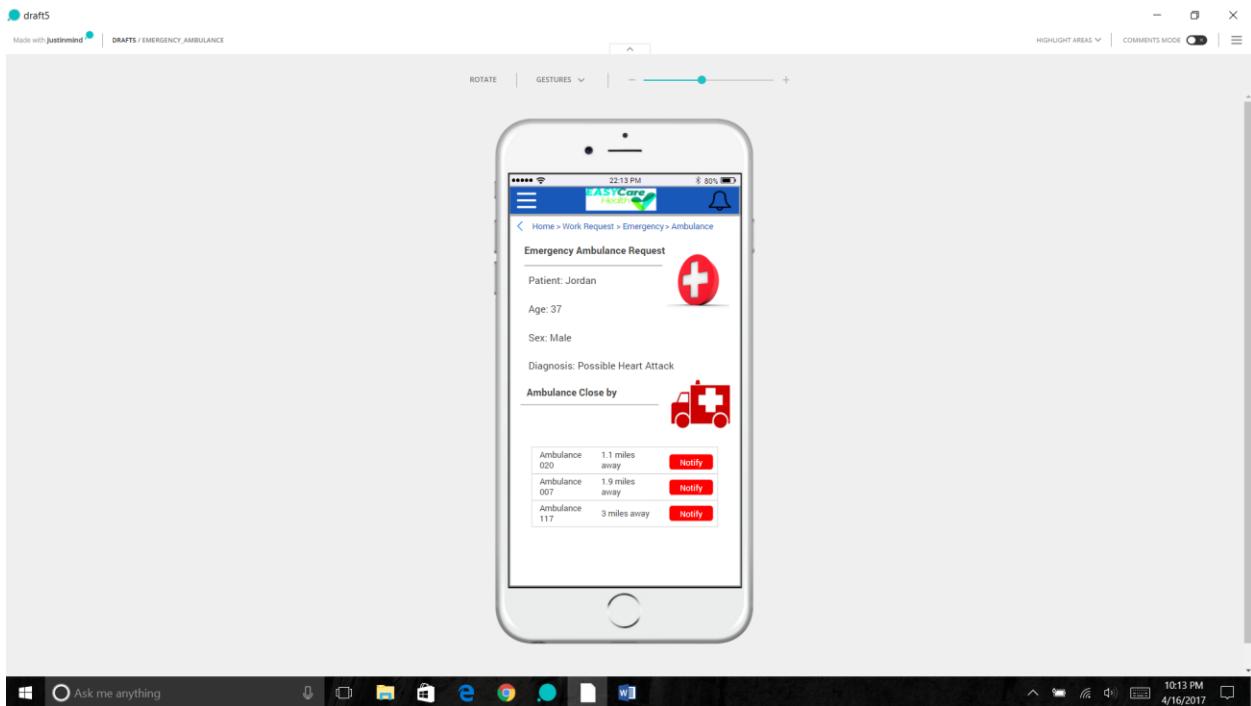
## Diagnose



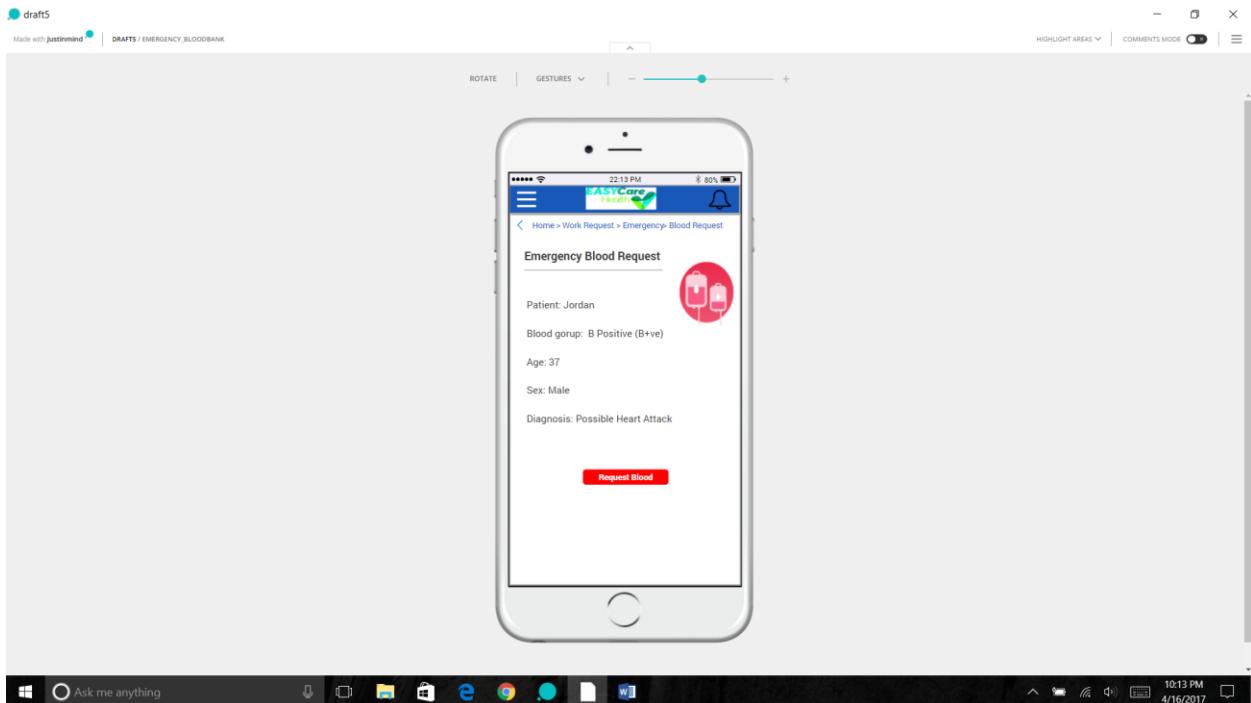
## Emergency



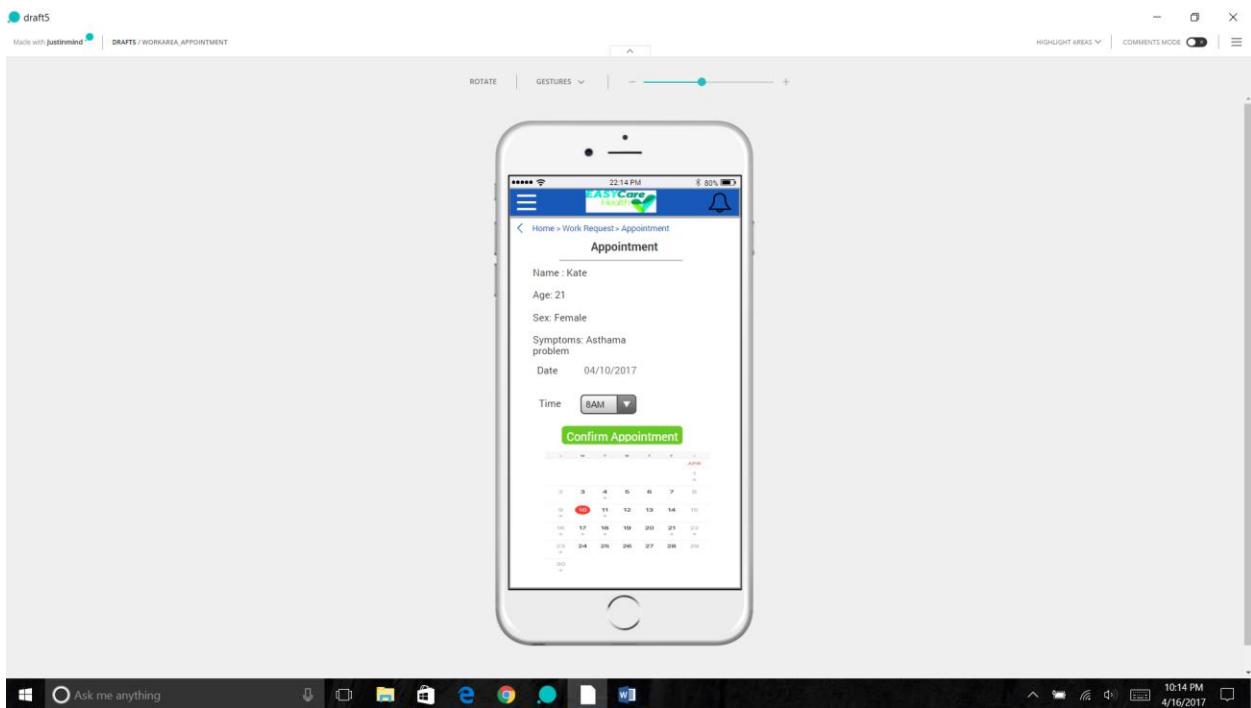
## Emergency with Ambulance



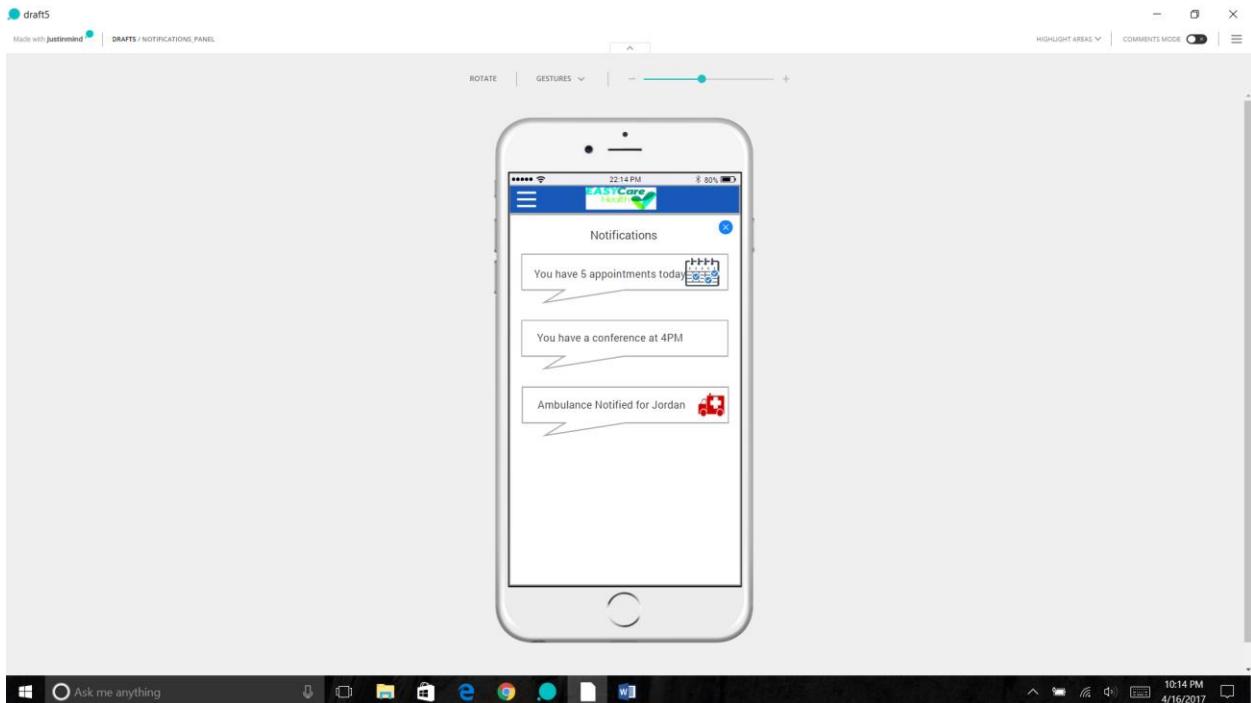
## Emergency with Blood



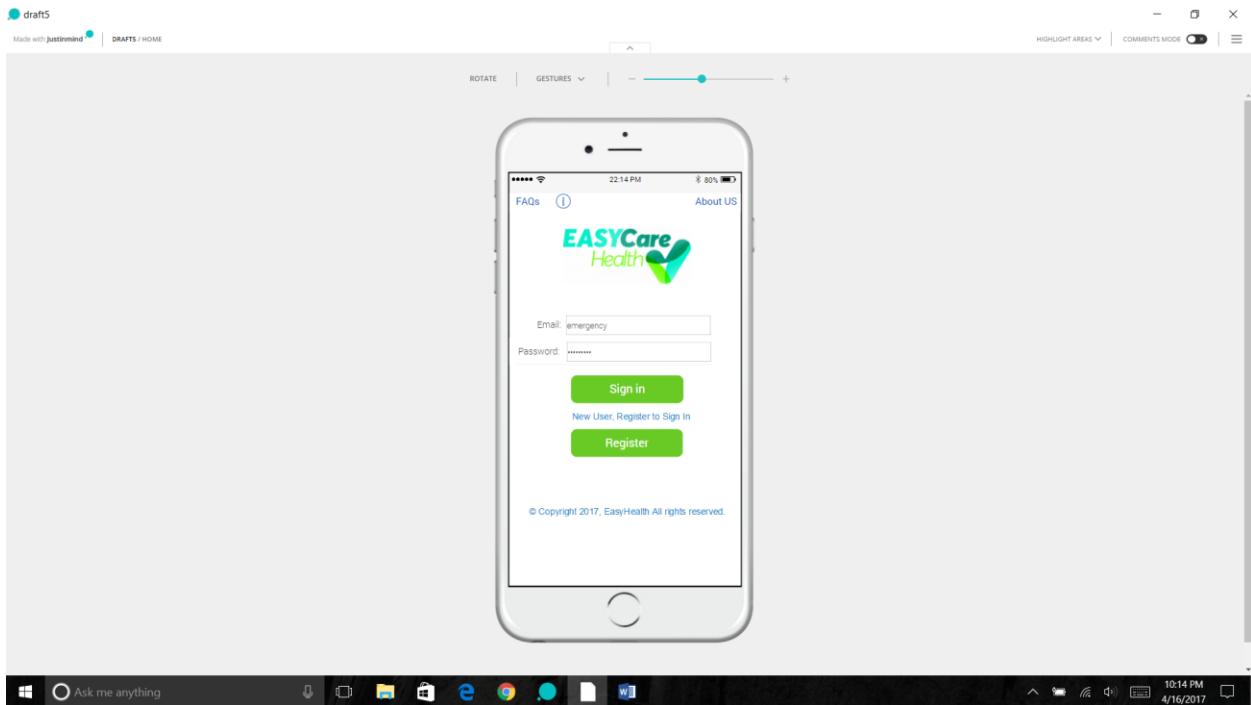
## Appointment



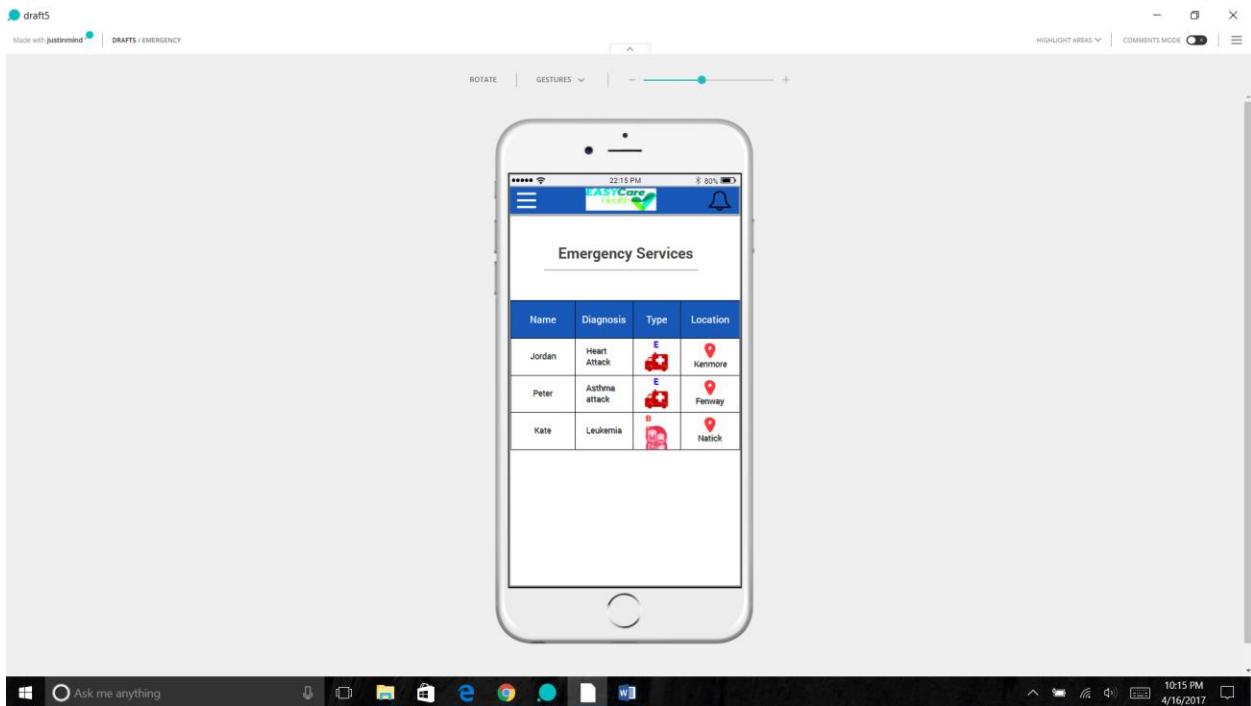
## Notifications



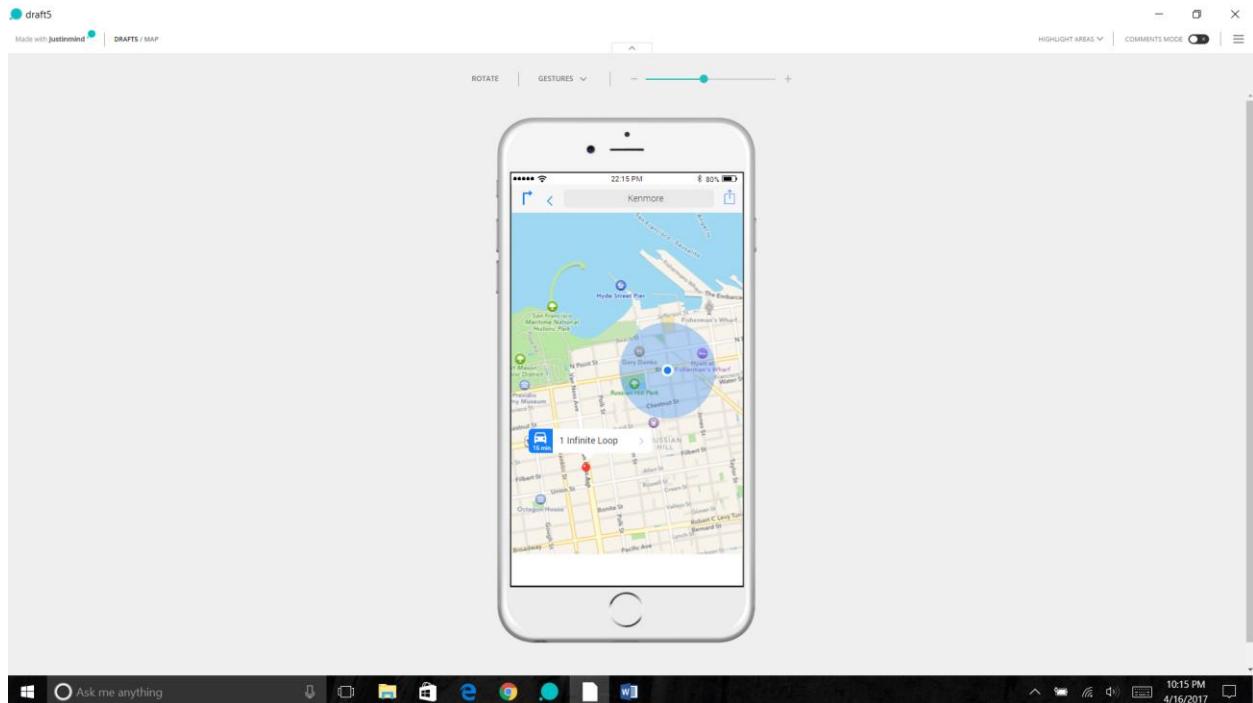
## Emergency Service Provider Login



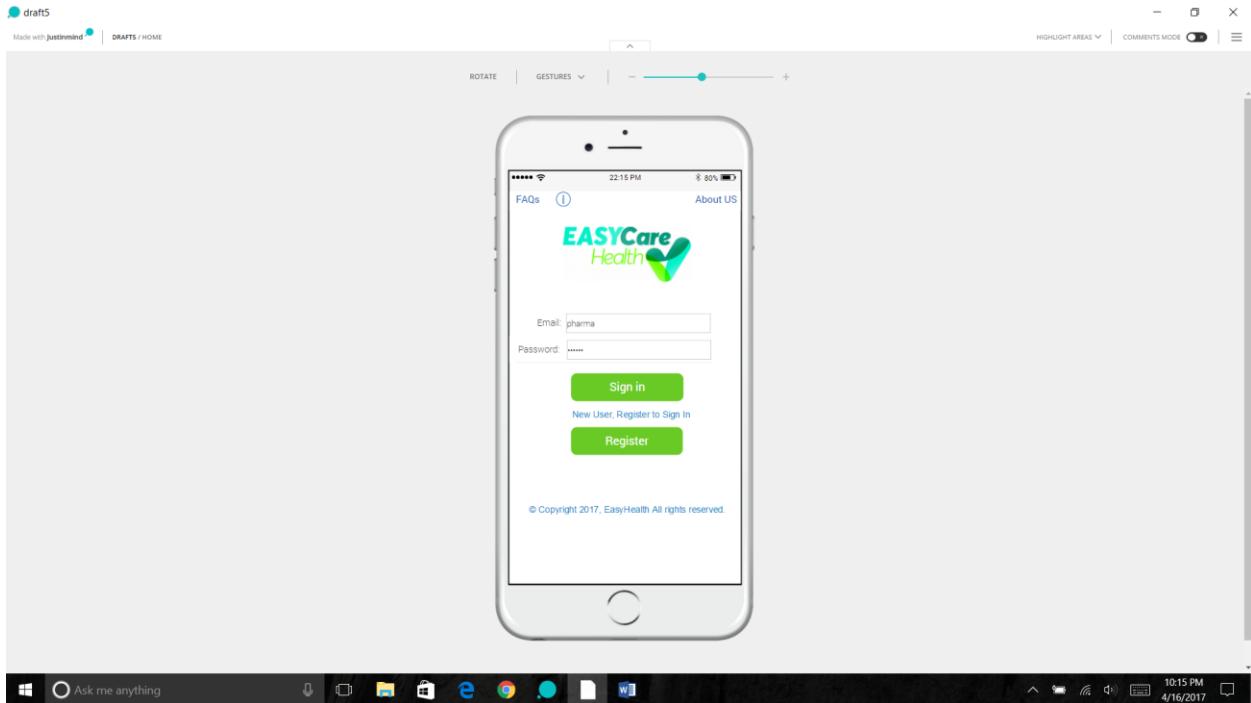
## Emergency Service Provider Home



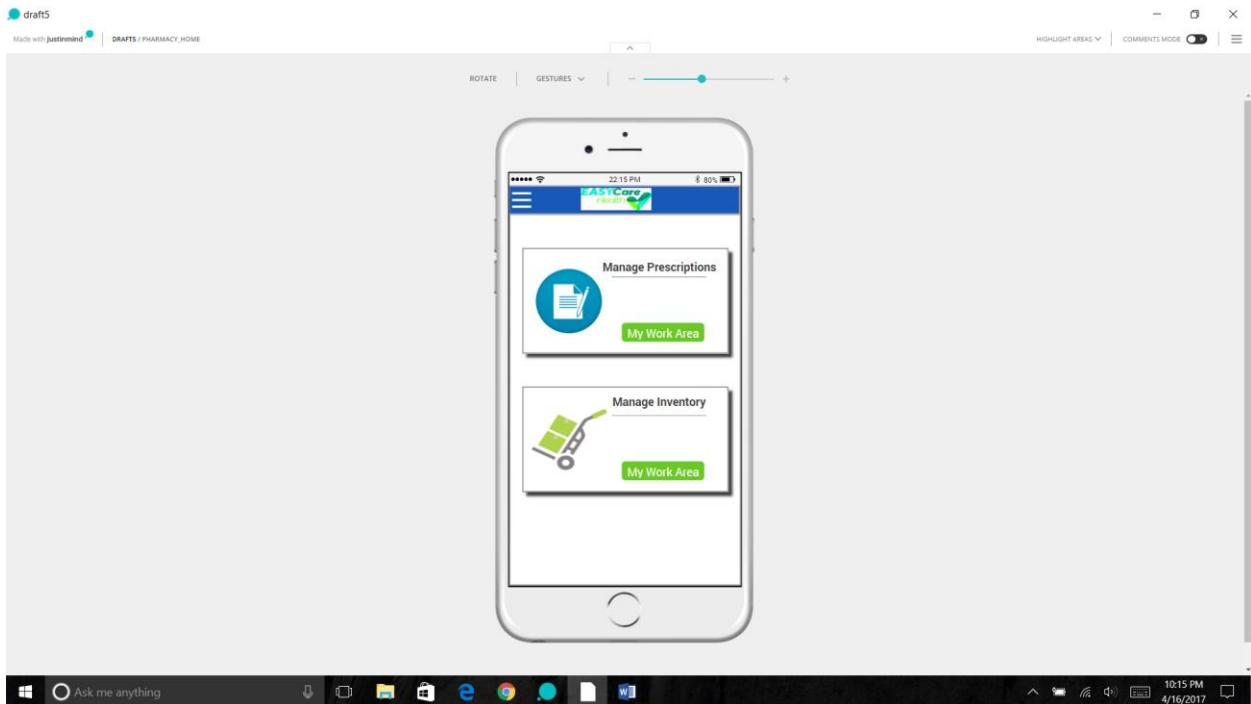
## GPS Navigation for Ambulance



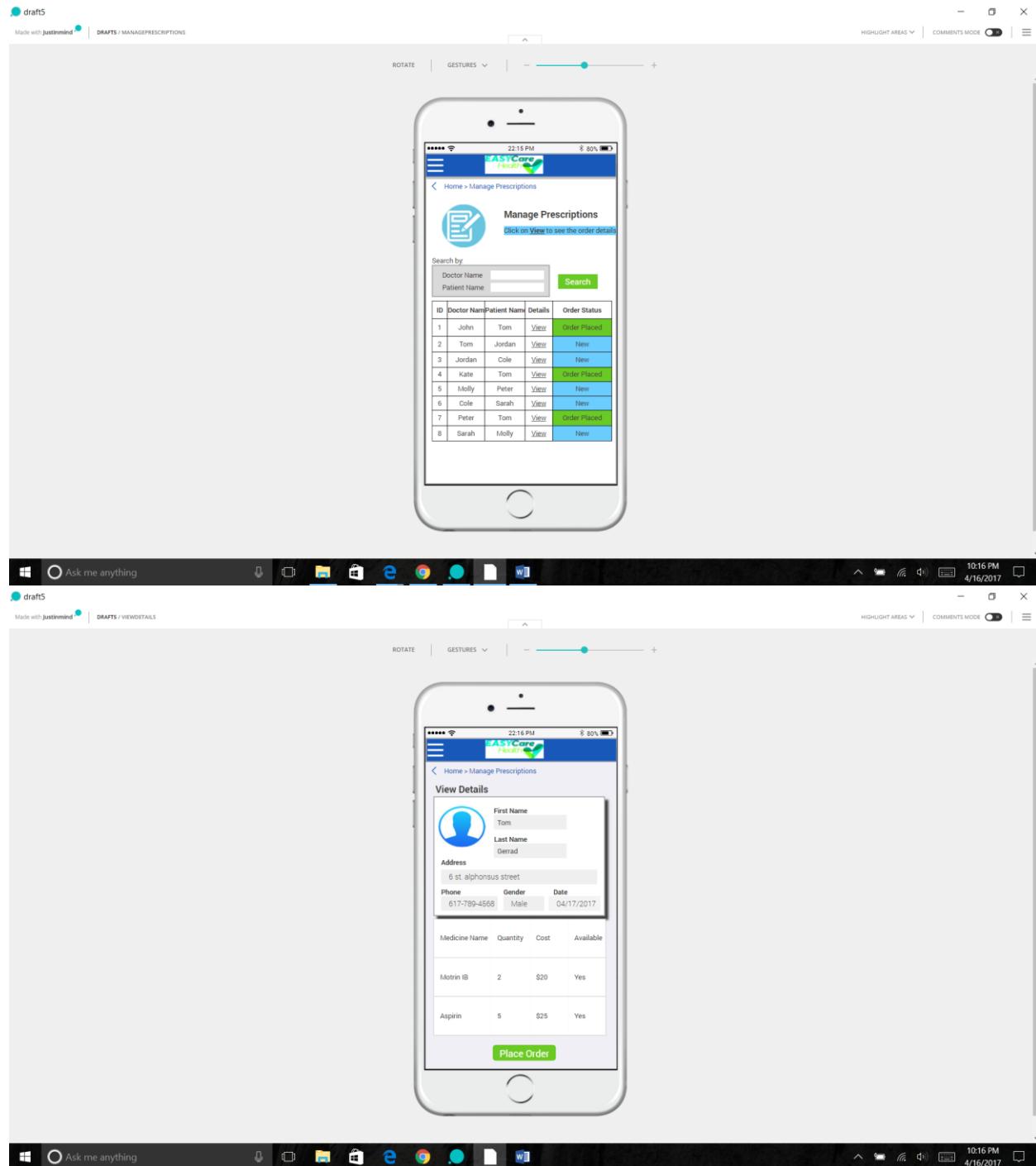
## Pharmacist login



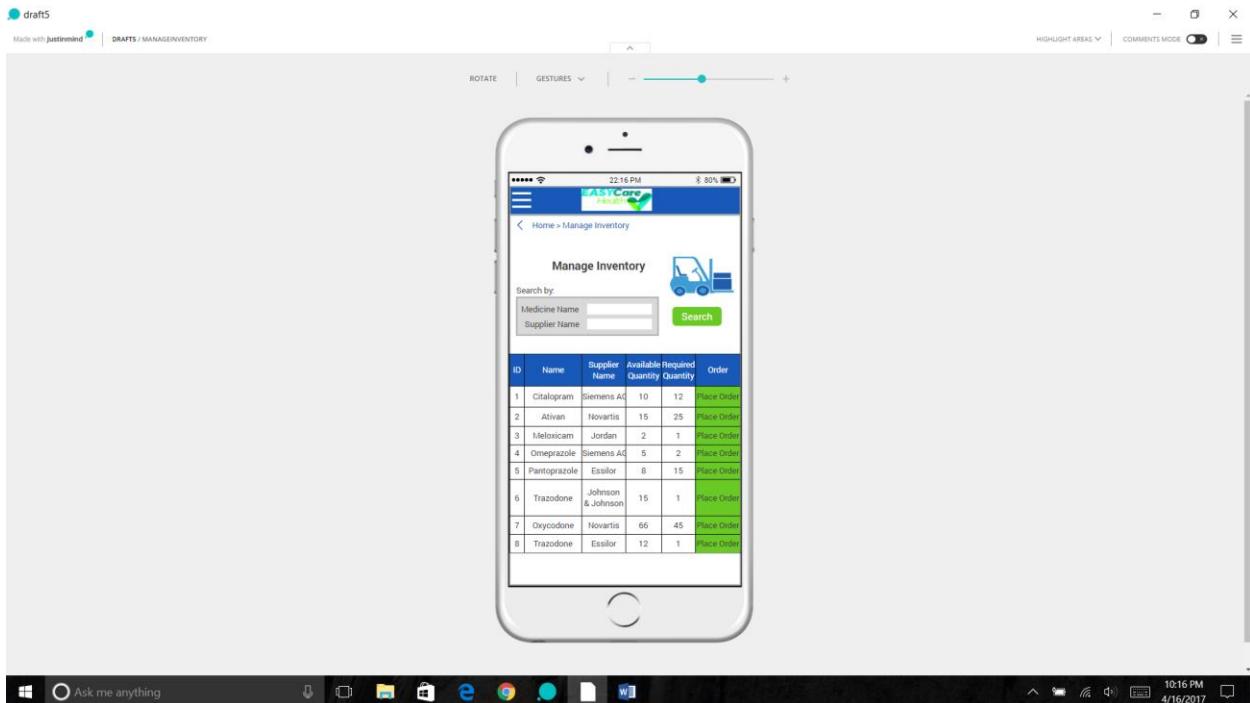
## Pharmacist Home



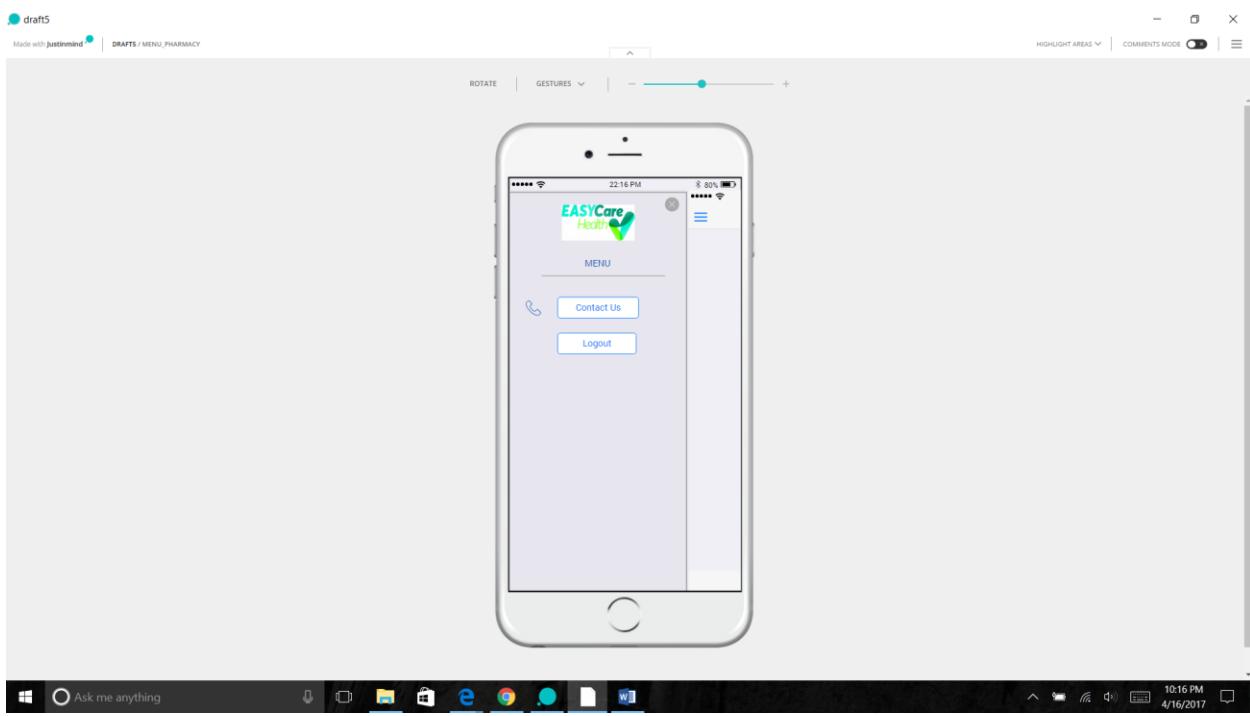
## Prescriptions



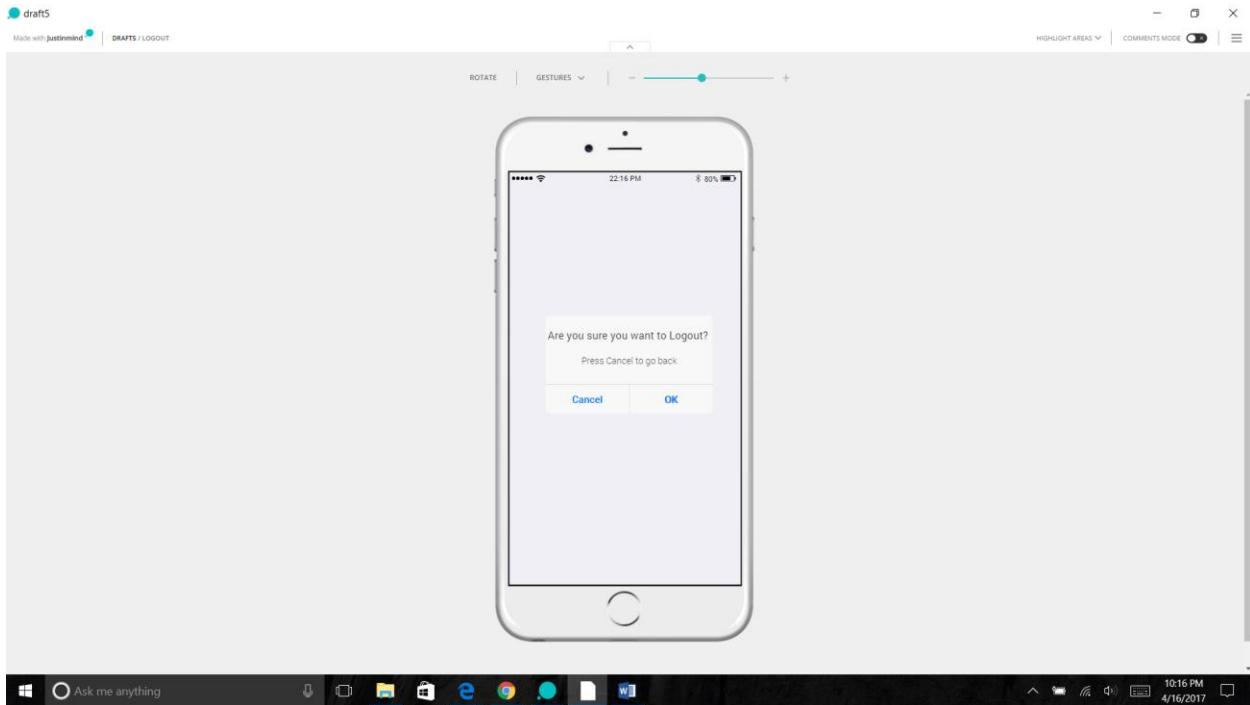
## Manage Inventory



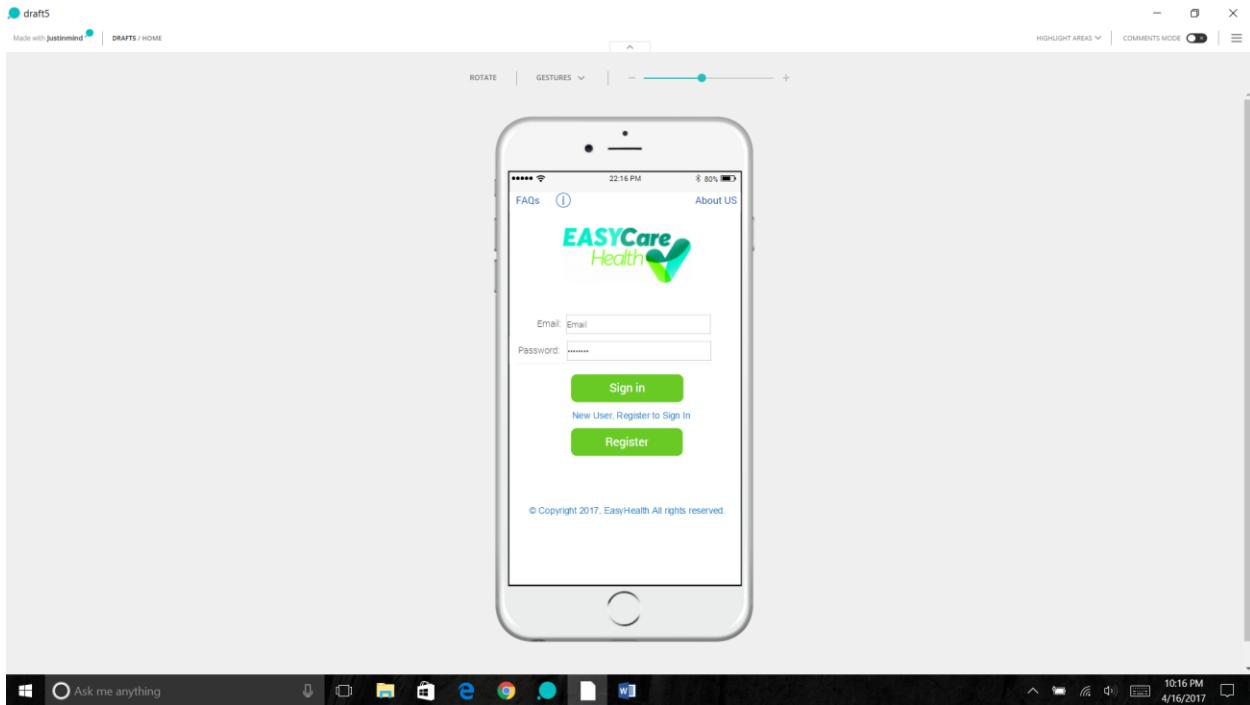
## Pharmacist Menu



## Logout Screen



## Landing page of the application



## 6.2. Windows Navigation Diagram

