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Care Point

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Academic Year 2017-2018

Midyear Documentation of Graduation Project

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**Chapter 1: Introduction**

**Main area of the project**

“Care Point” is a website that provides a set of medical services. The idea is to keep a way of communication between the three main parties of the medical system: patients, doctors and pharmacists. Also, it aims to add more flexibility to the medical service in Egypt by connecting individual services through one integrated system. The project focuses mainly on care-related services.

**Motivation**

In the recent few years, many reports and articles have been published to draw attention to significant problems in the medical service, either in Egypt or generally in the world.

In 2006, Washington Institute of Medicine (IOM) published a report saying that wrongly read prescriptions cause around 7000 ***yearly*** deaths all over the world. The reason, according to the report, is the sloppy doctor’s handwriting.

In 2011, an Egyptian Medical Board Officer said that about 30% of diagnosis in the Private Sector, and about 70% of them in the Public Sector were wrong, with total of 114 complaints from citizens in one year.

In 2017, Hossam Abdel Ghaffar, the spokesman of the Egyptian Ministry of Health, said that there is around 50% of shortage in ICUs in Egypt. This definitely makes it harder for a patient to quickly find a care room.

Those examples and many others are motivating us to do our project, hoping it will be a new contribution to the medical system in Egypt.

**Problem definition**

One of the main problems in the medical system in Egypt is the lack of coordination between medical organizations, like hospitals, clinics, pharmacies, … etc. That is, the patient looks for some place to get one medical service and that’s it. This problem has led to a shortage in the medical system ***as a whole***.

**Project objective**

“Care Point” aims to enable every citizen to easily search for a medical service, such as ICUs, incubators, dialysis rooms, … etc. The search can be based on different criteria such as distance, cost, popularity, rate ***or any combination of them***. By this, it eliminates the traditional way of single-criteria search. This is also powered by the ability to search for a medicine in the surrounding pharmacies.

“Care Point” also aims to provide the doctor with the whole medical history of his patients, along with all medical examinations they made such as radiology, analysis, … etc. By this, it breaks the boundary between medical organizations and gives the doctor all information he needs to correctly diagnose a patient.

Another important service is attempting to create a channel between doctors and pharmacists. For example, doctors can send prescriptions to pharmacies, and while writing a prescription, the system suggests alternative medicines to the doctor, so that ***accepted alternatives*** are shown to the pharmacist.

All of these services are integrated with other supplementary features. For example, when a doctor adds a ***genetic*** disease to the medical history of a patient, the system sends a warning to his family as they have the same disease. Finally, in an emergency situation a citizen can send an SOS to his friends, his family and the nearest hospitals.

**Project time plan**

The project has seven milestones, as illustrated by its time plan in the following Gantt Chart:

Gantt Chart goes here…

**Development methodology**

Because the project includes various services and involves different parties (e.g. clinic, radiation center, pharmacy… etc.), it is very hard to reach a well-defined or constant set of requirements. In other words, the functional and non-functional requirements are expected to change regularly during the implementation. So, the scrum methodology is chosen for this project, and it will be implemented in four sprints:

* **Sprint 1:** concerned with authentication, medical history, attachments and prescriptions.
* **Sprint 2:** concerned with medical organizations, searching for medical services and recognizing medicine alternatives.
* **Sprint 3:** concerned with user friendships, family trees, prognosis and SOS signals.
* **Sprint 4:** Concerned with pharmacy transactions, searching for medicines, rating and advertising for top rated services or pharmacies.

**Tools used in the project**

To be able to accomplish the project, we are using the following tools and technologies:

* **ASP.Net:** the technology we use to develop the website.
* **Microsoft Azure:** we use it to host the database, and we will use it to deploy the website.
* **Gitlab:** we use it to collaborate and share project files.
* **Moqups:** used to make UI blueprints.
* **Microsoft Project:** usedto help us do project management tasks.
* **Barcode reader:** used to read barcodes on medicines to enable pharmacy transactions.

**Document organization**

In Chapter 2, we give examples of other related projects, their advantages and disadvantages and how our project is different. In Chapter 3, we discuss the formal project requirements, system design and sample testcases. Finally, in Chapter 4 we give an overview of DB and UI designs.

**Chapter 2: Related work**

**Human Dx**



**Country:** USA (created in 2017, not fully developed yet)

**Technologies:** web

**Main features:**

1. Doctors can write case studies and others solve them. After a doctor solves a case study, he can see solutions of other doctors, and the system measures his accuracy according to what it learnt from previous experience.
2. System uses its experience to diagnose patients.

**Advantages:**

1. The system improves itself with the help of machine learning.
2. Useful for both humans and the machines.

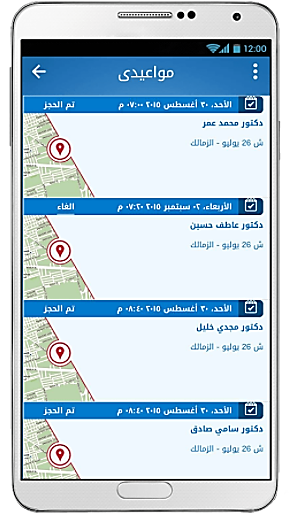
**Disadvantages:**

1. Depends totally on the volunteer of doctors to create or solve case studies.
2. The data used to learn is not much trusted, because the system allows ***anyone*** to solve case studies.

**Our improvement:**

We encourage specialists to join the system by freely advertising for the top rated medical services. Also, instead of learning machines how to diagnose, we focus on providing doctors with all information they need to diagnose correctly.

**Vezeeta**



**Country:** Egypt

**Technologies:** Android - Web

**Main features:**

1. Patients can search doctors by name, region, specialty or examination cost.
2. Patients can reserve appointments with doctors.
3. Patients can save favorite lists of doctors.
4. People can give ratings to doctors.

**Pros:**

1. Provides different ways to search for a doctor
2. Provides a website, an application for android phones and an application for iphones and ipads.

**Cons:**

1. Covers only regions in Cairo and few other regions around it.
2. Some ***related functions are separated*** in different vezeeta apps. For example, a doctor needs to install “Vezeeta Profile” to publish his profile to patients, while he needs to install “Vezeeta Care” to see analysis or radiology results of his patients.

**Our improvement:**

“Care Point” services are available for all Egyptians, and they are all provided through one integrated system.

**Chapter 3: System analysis**

**Project specification**

References:

* Washington Institute of Medicine (IOM) report, 2006 [Internet][Uploaded in January 2017], available from <http://content.time.com/time/health/article/0,8599,1578074,00.html>
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