**IV. Related Prior Work**

The existing system with different functionality named as:

# Medical Appointment Scheduling Software

<https://www.qnomyhealth.com/medical-appointment-scheduling>

Q-nomy’s medical appointment scheduling software is a central server solution for managing appointments across your clinics and reception areas.

The patient scheduling system can handle highly  complex procedures and scenarios such as managing hospital appointments. The patient scheduling system also enables quick implementation by small private clinics; friendly user interfaces allow doctors, staff and patients full access – from their PC, tablet or mobile phone – for maximum control of their schedule at minimum effort.

## Main Features

* Q‑nomy's appointment scheduling platform allows setting up, configuring, and managing staff calendars and resource availability.
* Q-nomy's [Visit Management App](https://www.qnomy.com/visit-management-app) offers mobile users the option to schedule and check in for appointments.
* Administrator interface allows configuring clinic and physician working hours, appointment capacity, overbooking limits, appointment types, appointment durations, and more.
* Easily set up complex treatments involving multiple stages, staff members, and resources. The system automatically searches for optimal scheduling where all required staff and resources are available.
* Calendar owner interface allows  opening and closing calendars, managing changes in staff schedules, rescheduling appointment blocks and so forth.
* Clinic and medical office staff interface for scheduling appointment and reviewing appointment scheduled through other channels.
* Easy management of waiting lists, and automated assignment of released calendar slots to pending appointment requests, based on priority and urgency.
* Automated reminders send patient reminders that include appointment details, preparation instructions, and so forth. These reminders can be printed when scheduling the appointment, or emailed/sent as an SMS afterwards and a few hours before the appointment.
* Patient appointment data integration with Microsoft Exchange, Outlook and any HL7-compliant software.
* Scalable appointment software for any number of hospitals, medical practices, clinics and doctors.
* All configuration settings are parameter based, require no programming, are done remotely from the server and affect all departments immediately.
* Online Medical Appointment Scheduling System (2016-2017)

[https://riunet.upv.es/bitstream/handle/10251/88831/CARA%20-%20Sistema%20de%20cita%20online%20para%20una%20consulta%20m%C3%A9dica.pdf?sequence=1](https://riunet.upv.es/bitstream/handle/10251/88831/CARA - Sistema de cita online para una consulta m%C3%A9dica.pdf?sequence=1)

The accessibility to services of web clinic is of utmost importance for success of any companies. Internet is a great way to make a clinic known to a large number of people that might potentially be interested in the services that the clinic might provide. Therefore, a creation of a website that would provide different information about the clinic and allow the management and scheduling of appointments online might benefit in many ways to an existing clinic. In order to minimize the costs and time needed to develop, deploy and maintain the website for appointments, different researches have to be conducted until finding the optimal technologies to be used in the process. While researching we found out the existence of CMS systems that potentially reduce the cost and time spent of all the three steps spoken before. The different technologies, such as webserver, programming language and DBMS to be used, were chosen in base of what CMS was chosen. The interest fell on WordPress, one of the most used systems worldwide, which is very easy to use and maintain. The resulting system allows current and future patients to easily make appointments with different doctors of the clinic 24 hours a day, 365 days of the year. In addition, this allows to unload the clinic’s staff from a lot of work that had to be done before the website creation.

Advantages:

* Less interaction needed with staff: since the appointments can be made online now, receptionist will be freer during the day and will be able to manage their time much more effectively.
* Reminders: with online appointment scheduling system, it is possible to develop a plugin that will send notifications to all the patients that have appointments scheduled in some number of days.
* Automatic holiday and non-working days management: Receptionist can easily add all the non-working days for both clinic and/or different doctors. The appointment making system will take into account these while patients make appointments.
* Automatic appointment confirmation: Every time a patient makes an appointment online he will receive an email confirming that he made an appointment successfully.
* Easy appointment management: patients, when logged in their accounts, can easily consult the upcoming appointments and do several operations around them.
* Easier appointment management for doctors: doctor will be able to see all the appointments made with him and manage them accordingly.
* Faster queue times: receptionist can manage easier the appointments making waiting times faster.
* DESIGN AND IMPLEMENTATION OF PATIENT MANAGEMENT SYSTEM

<https://www.academia.edu/27145315/DESIGN_AND_IMPLEMENTATION_OF_PATIENT_MANAGEMENT_SYSTEM>

This study investigated online hospital management system as a tool to revolutionize medical profession. With many writers decrying how patients queue up for hours in order to receive medical treatment, and some end-up being attended to as „spillover‟, the analyst investigated the manual system in detail with a view to finding out the need to automate the system. Subsequently, a computer-aided program was designed to bring about improvement in the care of individual patients, taking the advantage of computer speed, storage and retrieved facilities. The software designed will take care of patient‟s registration, billing, treatment and payments. The programming language employed in this work was Microsoft C#.

* OHP-014 A computerised queue management system in the outpatient pharmaceutical care unit of a hospital pharmacy service (2014)

<https://ejhp.bmj.com/content/21/Suppl_1/A190.1>

1. The large number of patients for whom medicines are dispensed in our Hospital Pharmacy Service has caused us to seek a system for control, order and proper monitoring. Queue management systems (QMS) are hospital information systems that organise patients in outpatient consulting waiting rooms (OCR).

Hospital: eliminates manual system for recording work done, provides information about opening and closing times, records the pharmacist who dealt with each patient, follow-up consultations, reasons for not attending and produces statistics.

Pharmacy Department: eliminates FIFO queue; provides real time information on the patients in the waiting room (arrival time, advances or delays in relation to their appointment time); increasing compliance with appointments.

Patient: more orderly access to OCR at the Hospital Pharmacy Service; improved arrival flows; reduces unscheduled patients checking in; reduces waiting times.

### [Healthcare | Hospitals Queue Management System (2014)](http://queuemanagementsystems.com/solutions/healthcare/)

<http://queuemanagementsystems.com/solutions/healthcare/>

#### Queues are primarily formed when customers request for a service. In healthcare, patients are the customers where outpatient clinics, laboratory diagnostic centres or hospitals are the service facilities.

In a typical healthcare centre, it consists of one or more service counters with one or more servers where patients are entertained. Mostly queues formed at healthcare facilities are ubiquitous and cause a lot of frustration as prolonged delay in services are observed. This results in patient discomfort resulting in medical conditions that can increase subsequent treatment costs and poor health outcomes.

Given the problems and negative consequences faced by patients due to poor queuing at healthcare patient flow management systems arise as the best solution to overcome this problem. Our patient queue management system makes your patient service area more informed and increases operational efficiency.

Queue solutions are specially designed for outpatient clinics, laboratory diagnostic centres and hospitals. Our queue management systems helps you manage a seamless flow of patients from an initial entry point to check out. The system allows to facilitate process efficiency and improve overall operational excellence at healthcare facilities by enhancing the patient experience.

From patient check-in to patient calling and appointment management, all integration facilities are optimized using patient flow management system.

**Benefits:**

* Management of patient queues more efficiently and conveniently
* System allows real time queue status information
* Reduces patient wait time and service time considerably
* Makes service areas less crowded with patients
* Multilingual interface
* Clearly shows length of wait of each patient
* Real-time reporting allows efficient management of hospital services
* Makes operational tasks more systematic as doctors are alerted when waiting times are exceeds

#### HOSPITAL DIGITAL SIGNAGE

#### Keeping patients and visitors informed, educated and engaged in an healthcare industry can be achieved using digital signage. Our digital signage solution gives you an opportunity to interact with your customers when they seated in the waiting area. Donatello, digital signage solution allows you to reach out to patients via important educational announcements, programs and advertisements. Moreover, this system can also be seamlessly integrated with our queue management system, allowing patients to see queue information in real-time.

**Benefits:**

* Delivers real-time information such as important announcements and alerts
* Source of engaging with patients through personalized messages
* Added revenue through targeted advertising
* Stream live videos, Television through Donatello
* Share upcoming events and disease awareness seminars

#### HOSPITAL CUSTOMER FEEDBACK SYSTEM

With a feedback system installed at any healthcare facility, the management can increase the understanding of how patients perceive practitioner’s service and you can highlight areas of improvements. This vital piece of information can help you create and transform a patient experience at any hospital facility.

Opinion Plus, a customer feedback solution allows patients to record real-time feedback using a tablet based or a self service kiosk. This is usually placed in patient service and waiting areas and collects patient views at any given point in time. Moreover, this system has the capability to seamlessly be integrated with a queue management system making reporting and customer feedback more comprehensive.

* **Queue Plus - Patient Queuing System (2014)**

<http://jinisyssoftware.com/patient-queuing-system/>

****Queue Plus****is a patient queuing system that is designed to make hospital queuing easier and more efficient. It's simple and easy to use. Queue+ can help filter the patients queue by identifying which medical specialist or doctor they wanted to consult to. Queue Plus improves the hospital's handling of queues to better assist the patients and leads better customer satisfaction.  
  
Both the clinic attendant and the patient are sure to be trouble-free when operating the Queue Plus. With Queue Plus System, your hospital will be able to provide better and more efficient services. With Queue+ your hospital is in good hands.  
  
**Discussion**  
When large amounts of people require the same thing or are going to the same destination, the line usually gets messy. Disorder forms from people wanting to be served first; fighting might also ensue. The queue system was developed to provide order and to serve clients using the first come, first serve method of transaction.To further facilitate this order, the Queue Management System was invented.  
  
Early implementations of the management system were manually facilitated. A person would give out queue numbers to clients in the order they came in. An available teller would then call out the number that they would entertain. This was very effective back in the day; lines were organized and clients were entertained. However, this was very inefficient and took a lot of man power to sustain. If the client didn’t hear the teller call out the number then he would miss his turn and be inconvenienced. This took quite a toll on overhead expenses as well due to the need for more staff.  
  
Through modern innovation, the current Queue Management systems were developed to combat these issues. A computer automatically generates the queue number and calls the number to be served through a voice recording. Large screens also display the numbers being served and their corresponding service counters so that clients are promptly alerted.One of the industries that really benefit from the system is healthcare. Without a proper queuing system, the patients might not be promptly catered to. Insevere cases, it could mean life and death.  
  
Jinisys Software Inc. offers a Queue Management System for just that purpose. The Queue+ software adds a patient into a specific queue depending to their medical needs such as orthopedics, pediatrics, or a particular doctor. When a specialist is available, the system displays the number of the patient to be served and the room they should go to. It is a very efficient and hassle-free system that provides patients and hospitals attendants trouble-free operation. Greatly increase your hospitals customer satisfaction with our Queue+ management software, a must have for any health care establishment. We can also customize the system to suite a variety of industries and applications.  
  
**Publisher:** Jinisys Software Inc.

* **MEDtrix**

Hospital management software

<https://www.hybrain.co/products/medtrix-hospital-information-system/>

MEDtrix is a fully-integrated hospital information system that can meet the requirements of all corners of a running health care institution. You can get them by package or by *a la carte.*

Hospital Information Systems (HIS) are *enterprise-grade*, *comprehensive*, *integrated information systems*designed to manage medical, financial and other business related functions in the hospital. These are massive, complex, integrated systems that support the comprehensive information requirements of hospitals, including patient, clinical, ancillary and financial management.

### Clinic System

Paperless clinic system, patient data management and list, consultation dashboard, discharge diagnosis, doctor's orders, prescriptions, labs, patient details, payment,appointment scheduling, income record, system config.

# Medical Appointment Scheduling/Re-Scheduling from an Offshore Location

Healthcare entities save valuable time and effort when they outsource to reliable and efficient billing companies in offshore location their patients’ appointment schedules and re-scheduling. Outsourcing gives them more time for other important tasks such as improving workflow and attending to the needs of patients.

Healthcare professionals arrange appointments in various ways. The usual practice involves writing the appointments on paper and using the telephone. But an easier and more efficient option involves using the Internet.

The web-based appointment scheduling and re-scheduling has gained popularity in recent years because it offers patients and medical practitioners flexibility with plenty of room to make changes. It is also easy, accurate and convenient.

Patients can seek appointments and make changes in their schedules wherever they are or in various locations. The web is fast, and appointments can be set and changes made on the run.