Smart System to Guide Patient
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Abstract: The purpose of the project entitled as “SMART SYSTEM TO GUIDE PATIENT” is to computerize the Front Office Management of Hospital to develop software which is user friendly simple, fast, and cost effective. It deals with the collection of patient’s information, diagnosis details, etc. Traditionally, it was done manually. The main function of the system is to navigate the patient, register and store patient details and doctor details, and retrieve these details as and when required, and also to manipulate these details meaningfully, fix appointments and also patient can give their feedback to the hospital. System input contains patient details, diagnosis details, patient feedback, appointment date and time while system output is to get these details on to the screen. The Smart System to Guide Patient can be entered using a username and password. It is accessible either by an administrator or receptionist. Only they can add data into the database. The data can be retrieved easily. The data are well protected for personal use and makes the data processing very fast. The Smart Hospital Management System can get much out of the system. Using the system as is simple as using the personal computer. Since end user computing is developing in our country. It is beneficial to both hospital and the patients. Every step is clearly defined and help is provided throughout the application to the user. Even the exceptions are handled well to avoid confusion.

Keywords: hospital, guide, appointment, navigate, diagnosis

I. INTRODUCTION
The project Smart System to Guide Patient includes registration of patients, storing their details into the system, navigate the patient, fix appointments and also patient can give their feedback to the hospital. The software has the facility to give a unique id for every patient and stores the details of every patient and the staff automatically. User can search availability of a doctor and the details of a patient using the id. The Smart System to Guide Patient can be entered using a username and password. It is accessible either by an administrator. Only they can add data into the database. The data can be retrieved easily. The interface is very user-friendly. The data are well protected for personal use and makes the data processing very fast. Smart System to Guide Patient is powerful, flexible, and easy to use and is designed and developed to deliver real conceivable benefits to hospitals. System is designed for multi-specialty hospitals, to cover a wide range of hospital administration and management processes.

II. RELATED WORK
A number of schemes introduced for the health care integration some of them are as follow.

A. Social Security Administration (SSA) Health IT semantic Interoperability Pilot Project [ONTA] (SEMA)[II](2006)
The Health IT Semantic Interoperability pilot was developed in by the SSA as proposed proof-of-concept in 2006 for integration of a Health IT and Disability Determination business process. In particular, this business process requires data sharing and processing across various governmental and private sector enterprises such as SSA, VA, CMS, HHS, NARA, hospitals, healthcare providers, insurance providers, legal communities and others.

B. Artemis Project and the Artemis Message Exchange Framework (AMEF) [ONTA] [SEMB](2008)
This system is developed to provide the exchange of meaningful clinical information among healthcare institutes through semantic mediation. Some of the achievements of the Artemis project include: Demonstration of a very robust but highly flexible approach to security and privacy. Apache ActiveMQ Artemis is an asynchronous messaging system, an example of Message Oriented Middleware, we'll just call them messaging systems in the remainder of this book. We'll first present a brief overview of what kind of things messaging systems do, where they're useful and the kind of concepts you'll hear about in the messaging world.

C. Multi Agent Systems for Health Care(2015)
Many documents, specifications, procedures and research materials are surveyed which are readily available in electronic libraries. For carrying out research several systems have been studied based on multi agents and ontology for health care domain. Multi agent system is very useful for developing next generation healthcare services. One of the most rapidly evolving government sectors in any country is the healthcare industry. Today, the healthcare system of developed nations is facing the various challenges presented by an aging population. Increasing demand for health services presents a challenge for the existing healthcare industry, as vast amounts of resources will be required.

The Multi-Agent System (MAS) approach provides a powerful platform for modeling and solving real world
problems such as healthcare. This makes it possible for patients to remain at home and consequently reducing costs. This paper presents developed MAS applications in healthcare, as well as explores the future of developed MAS applications. In particular, it will be argued that these health based MAS applications can provide a reasonable way to mitigate the cost due to increased demand for services.

III. PROBLEMS OF CURRENT SYSTEM

In large sized hospitals (e.g: AIIMS, PGI etc.) when a patient arrives alone or usually along with their care takers in the OPDs, Emergency departments, Pediatrics Centre etc. The patients are generally in emergency condition and often feel lost. The first approach is therefore to the reception bay, from there the patients are directed to go to billing counter, available consultant Doctor is then decided. The whole process, most of the time turns very stressful as it demands critical time of the patient. Sometimes duty guards are not available and available guards are not able to leave their duty areas to guide the patients to their destination in the hospitals.

A. Lack of immediate retrievals: -

The information is very difficult to retrieve and to find particular information like- E.g. - To find out about the patient’s history, the user has to go through various registers. This results in in convenience and wastage of time.

B. Lack of immediate information storage: -

The information generated by various transactions takes time and efforts to be stored at right place.

C. Lack of prompt updating: -

Various changes to information like patient details or immunization details of child are difficult to make as paper work is involved.

D. Error prone manual calculation: -

Manual calculations are error prone and take a lot of time this may result in incorrect information. For example calculation of patient’s bill based on various treatments.

E. Preparation of accurate and prompt reports: -

This becomes a difficult task as information is difficult to collect from various register.

F. Difficult to search near hospitals in case of emergency:

In case of emergency, it is very tedious task to find the nearby hospitals.

G. Fix appointment manually: -

Patient have to visit the hospital or doctor to fix the appointments.

IV. PROPOSED MODEL

The Smart System to Guide Patient is designed for any hospital to replace their existing manual paper based system. The new system is to control the information of patients. Room availability, staff and operating room schedules and patient invoices. These services are to be provided in an efficient, cost effective manner, with the goal of reducing the time and resources currently required for such tasks. The new system having the facility to find nearby hospitals, patient can fix appointments at any time and any place using their mobile phones and can also give the feedback to the hospitals.

A. Detailed Life Cycle of Project

Fig1: Life Cycle of project

B. Working of Proposed System

The working of the proposed system with the help of snapshots of various modules.
1. Home Page

Maintain basically three blocks: emergency care, free consultation, blood donation. Contains service area which provides services to the patients.

2. Home Page

Home Page mentions all the blogs in an indexed manner for a proper and modeled view for all the users.

3. Our services

In this, we have 6 fields i.e., cardiology, gastroenterology, medical labs, dental care, surgery, neurology after that there are 3 partitioned along with static data i.e., our vision, our culture, our mission.

4. Home Page Footer

Contains footer in which we have all address and contact us. Patient can contact to the hospital via e-mail, messages and phone numbers manage department of hospitals, user, doctor accounts watch appointment of doctors.

5. Admin Login
Fig5: Admin Login Page

Watch transaction reports of patient payment. Bed, ward, cabin status. Watch all reports and watch medicine status of hospital stock.

6. Appointment Form

Fig6: Appointment Page

Contains list of doctors List of department. We have form to fix appointment which contains some fields as patient name, e-mail address, phone number, sex (male/female/other), date of appointment, previous medications etc.

Having button for “book appointment

7. Our Departments

Fig7: Our Departments

In this, we have 6 fields i.e., cardiology, gastroenterology, medical labs, dental care, surgery, neurology. After that there are 3 partitioned along with static data i.e., our vision, our culture, our mission

8. Navigation

Fig8: Navigation

In the navigation bar, there is a navigator. After click on the navigator, we will re-directed on the new page that is the “FIND NEAREST HOSPITAL” page and there is a map. Device will ask for patient’s permission to access the current location. By allowing and give the access to the device to trace patient’s location. Map will show the range of 30 km. from the current location of the patient.

V. CONCLUSION AND FUTURE WORK

- The purpose of the project entitled as “SMART SYSTEM TO GUIDE PATIENTS” is to computerize the Front Office Management of Hospital to develop software which is user friendly simple, fast, and cost-effective.
- The main function of the system is register and store patient details and doctor details and retrieves these details as and when required, and also to manipulate
these details meaningfully System input contains patient details, diagnosis details, while system output is to get these details on to the screen.

- This system has a potential to save lot of time and dependencies for the patient.
- Since we are entering details of the patients electronically in the" Smart System to Guide Patient", data will be secured. Using this application we can retrieve patient’s history with a single click.
- Thus processing information will be faster. It guarantees accurate maintenance of Patient details. It easily reduces the bookkeeping task and thus reduces the human effort and increases accuracy speed.
- The smart system to guide patient for outpatients is feasible and can be successfully implemented to provide personalized information with high satisfaction. Additionally, the issues identified and lessons learned from our experiences regarding task scheduling, indoor navigation, and usability should be considered when developing the system.

VI. ACKNOWLEDGMENT

We would like to express our deep gratefulness to all the people who have supported us during this work in particular, sincerest gratitude to our guide Ms. Shrusti Porwal, who spared his valuable time in guiding us for our dissertation work.

We would like to thank our head of the department Dr. Amit Sinhal for his valuable suggestions towards formulating the problem statement and planning for the work.

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