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# Implementation of laboratory management System (LMS) using .net

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**ABSTRACT-The Laboratory management system is powerful, flexible, and easy to use and is designed and developed to deliver real believable benefits to hospitals. And more importantly it is backed by stable and dependable support. This system is made for multispecialty Laboratory, to cover a wide range of Laboratory administration and management processes. It is a combined end-to-end Lab System that provides relevant information across the Laboratory to support effective decision making for patient care, Laboratory administration, and provide medicine in a seamless flow. All the required modules and appearance have been particularly built to just placed in to your requirement. It covers all the needed modules right from Patient Registration, Lab staff, Admin and other required modules. To execute this project we use Asp.net and the Data base is SQL Server 2008. Because Asp.net is very powerful language to write, understand easily also user friendly to both Programmer and user compare to all other web technologies.**

***KEYWORDS****: Management, Flexible, Dependable, Multispecialty, Administration, Registration, web technologies.*

## I. INTRODUCTION

Public health laboratories (PHLs) running as the first line of defence to protect people against diseases and other health thread. Working in combination with other segments of the **nation's public** health system, PHLs provide diagnostic testing, disease surveillance, applied research, laboratory training, and other needed services to the communities they serve. Clinicians, hospitals, emergency responders, and public health officials at local, state and federal agencies depend on the rapid, accurate, and complete communication of health-related information from local and state PHLs to diagnose, treat, prevent, and control diseases and other public health threats. As a result, there is a risky need for PHLs to have efficient laboratory management systems (LMS). Computerized laboratory management system designed for laboratories. Manages lab data from sample log-in to reporting combine with analytical instruments Sorts and organizes data into various report formats Stores data for future reference and use Improve data management in lab to increase lab possible. Empower centralization of information. Support and augment business processes of the lab. Take merit of new lab information technology. Provide user friendly to access the data. Hardware, software, people, procedures and data Functions of LMS--Patient focus, Empower the determination of patient outcomes Integrate patient and specimen information Support patient management and

treatment Benefits of LMS--LMS increase the efficiency of laboratory. LMS shows all instrument are unified. By accessing this website it save time because the information is obtained at the snap of the button and also we got good guidance about good laboratory for testing blood samples for laboratory management system and also it is useful for future references for their need.

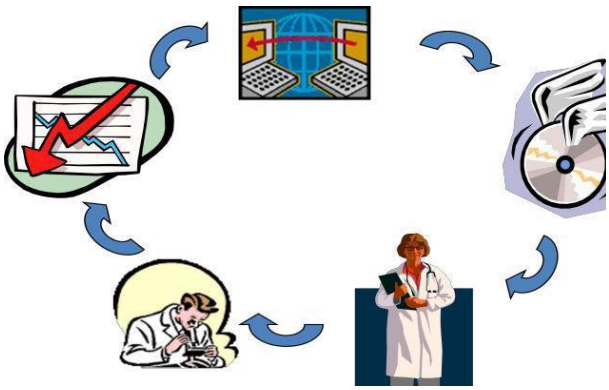

Fig1: Function of LMS

## II. EXISTING SYSTEM

Existing system needs manpower to record all the details of all the patients and manage the prescription papers and lab appointments confusions. On patient view its riskier job to go to all testing labs. Patients need to waiting in queue in testing labs. On **administrator side it's difficult to manage the Laboratory system.** The Demerits are maintenance costs are high. Administrator has to keep vision of all the processes.As files are maintained manually; possible for errors are large Needs more time. The Laboratory and testing labs are get finished after patient arrives, appointment confusions. Needs more paper works **patients or patient's** relations are should be waiting in queue to get Laboratory and testing labs.

## III. PROPOSED SYSTEM

The proposed system should fulfill all the demerits of the existing system. The existing system is not functioning well due to manual process. Thus the proposed system should minimize the manual efforts. Time consumption for arrangement will be minimum. It saves manual effort and time and provides remote database storage and retrieval. The merits are comparing the existing system it minimize the maintenance cost and investment. Prohibit errors due to manual process. As system exists as online it possible **Staffs and patients communicate effectively. It's pos**sible to reduce **appointment confusions. It possible to minimize paper works. It's** possible to minimize patient queues. Patients can easily get the appointment time and medicine bills on their finger tip. The Laboratory and testing labs can get ready before patient arrives.
The following points are explained

- Safety
- Security
- Reliability

There are many aspects to consider when choosing a LMS and there are indeed many reasons for selecting particular LMS merchant. Although financial reasons are often importance, other issues must be sending into accounts. This section covers safety, security and reliability and how these characteristics glaring within a LMS. For a LMS to display these three attributes, it is need to look deeply at two important areas; the LMS programming language and the LMS OS. The programming language should be capable of opposing Programming. Functions such as exception handling, variable typing and garbage collection should be current in a viable LMS programming language. The OS should be powerful. It should monitor and regulate all resources under its control, ensuring that they are not being improperly accessed, maliciously or otherwise. The system must be protected at all points. This means considering dual processor machines, malfunction power supplies, network clusters, and hot-swappable components. Most systems now d**ays'** supply some kind of user ID and password security feature. This is infamously delicate, as many users tend to lose, share or even write their

passwords down. There are various **"**detecting**"** devices, which enable wrong doers to commit impersonation attacks. Encouraging people to keep their passwords safe and to change them often can minimize the chances of attacks. In addition, there are various biometric devices for authentication such as fingerprint, voice print, retina scans and so on. The most valuable part of a LMS is the data. It is important that the data can be authenticated so that its integrity can be weighed. This process of authentication can be achieved with the use of digital signatures. Digital signatures can be used to prove the source and sender of a piece of data, verifying the recipient that the data is valid and has not been meddles with. Although it is extremely difficult to prevent packages of sensitive data being block and compromised, encryption methods and protocols can help protect the data from illegal access. The Lab server maintain the records and then it used to maintain their lab management and then it used to give full details about the medical information to maintain laboratory.

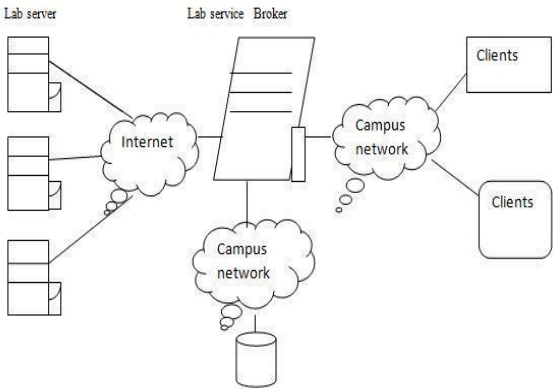


Fig 2: Architecture of Proposed System

## V.MODULE IMPLEMENTATION

A) Administrator Module

Here administrator has to login by using their unique username and password**.**

Administrators are the only authorized person to access admin module for security purpose.

So other user **doesn't get rights to access this module.**

- Lab Staff
- View Feedback
- Lab Staff


Fig 3: Home page of LMS


Fig 4: Hospital Information


Fig 5: Admin Login

| *Patient Visit* | *Clinics* |
|---|---|
| Patient Id<br>Date Time<br>Test detail | Clinic Id<br>Name |

Fig3: Database Tables for Admin

B) Lab Staff Module:

The lab staffs are nothing but laboratory staffs like nurse, ward boy, receptionist and etc. Here lab staff has to login by using their unique username and password. Lab staffs are the only authorized person to access this module for security purpose. So other user **doesn't get** rights to access this module.

- Blood View
- Lab Details View View Patients
- Blood View

In this module lab staffs add the blood stock. Lab staffs are the only authorized person to access this module. Lab staff can update **and delete the patients' details. Other user doesn't get rights to** access this module for security purpose.


Fig 6: Lab Staff Login

C) Laboratory Details View

This module schedules the appointment to the particular lab/diagnostic centre.

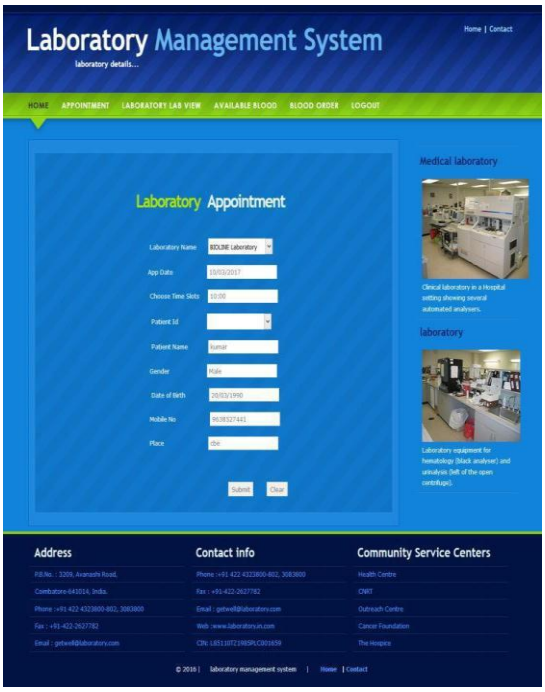


Fig 7: Laboratory Appointment

D) View Patients:

In this module Lab staff can see the patients by appointments and sent by other lab staff. Lab staff can send the patient to other section Lab staff can send the patient to testing labs for needed tests such as blood test & etc. Lab staffs check the patient and send the prescription to laboratory with patient name & id. Lab staffs are the only authorized person to access Lab staff module for security purpose.

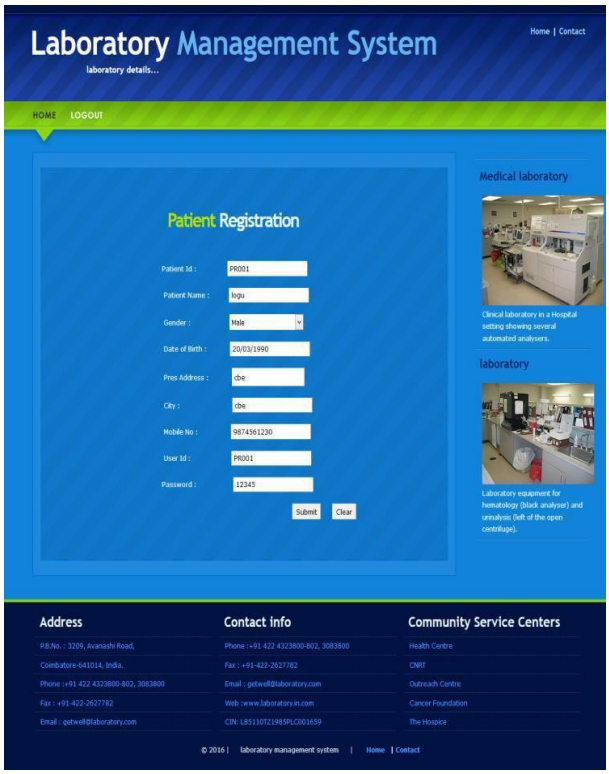


Fig 8: Patient registration

| ***Patient Visit Lab Tests*** | ***Patient Appointment*** |
|---|---|
| Visit Id | Appointment Id |
| Test Description | Patient Id |
| Date Time | Date Time |
| | Clinic |

Fig3: Database Tables for Patient Appointments.

E) Patient Module:

Here Patient has to login by using their unique username and password. Patients are the only authorized person to access this module for security purpose. So **other user doesn't** get rights to access this module

- Laboratory Details View Appointment
- Feedbacks

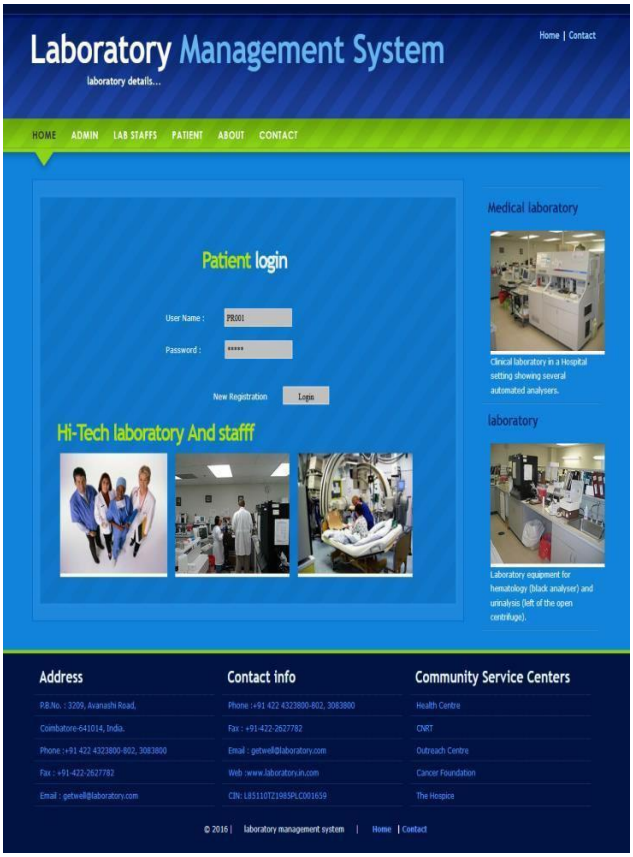


Fig 9: Patient Login

F) Laboratory Details View:

This module contains full details of lab. User can view the services provided by lab and fix appointment in selected laboratory. Appointment--After confirming lab user have to place their appointment by selecting date and services. Feedbacks--In this module patient can add the feedbacks about laboratory, Lab staff and etc. Patients are the only authorized person to access this module

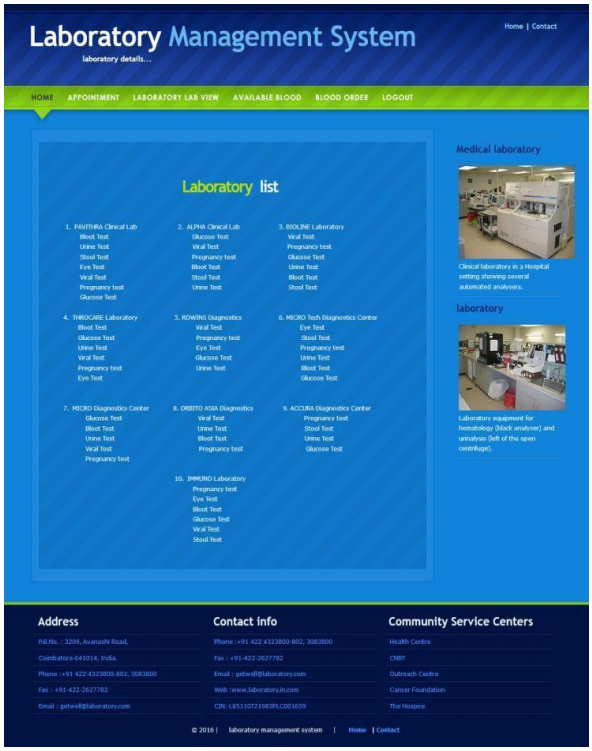


Fig 10 : Laboratory list

## VI.CONCLUSION

In this paper, we discussed architectures for delivering clinical laboratory information on the Internet. Sub-second response times are crucial for the users to accept web-based clinical laboratory management systems. For web-based laboratory management systems to be widely accepted, secure access to confidential laboratory data is a critical pre-requisite. This paper provides an insight into security architecture for web-based laboratory management systems.

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