

# Pathology Lab Management System

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**Abstract:** Providing appropriate medical services to patients without any delay, especially in case of emergencies, has been a major challenge in the field of medical sciences. The proposed system tries to overcome this problem. Patient can search for nearest hospital from their current location and also search for the test and compare price among different hospitals. The new system is to control the following information; patient information, room availability, staff and operating and patient invoices. These services are to be provided for such task. A significant part of the operation of any Pathology Lab involve the acquisition, management and timely retrieval of great volumes of information. This information typically involves; patient medical information and medical history, staff information, staff scheduling and various facilities waiting lists. All of this information must be managed in an efficient and cost wise fashion so that an institution's resources may be effectively utilized. PLMS will automate the management of the Pathology Lab making it more efficient and error free. Pathology lab Management System is designed for any pathology lab to replace their existing manual, paper based system. It aims at standardizing data, consolidating data ensuring data integrity and reducing inconsistencies.

**Keywords:** ANDROID STUDIO, APPLICATION, GUI, SQL.

## Introduction

Health system research is a part of health research. It closely links field evidences and applies its results for the improvement of the health system. Initially, it was known as health service research and the terminology shifted to health system research from 1980s. The health service research focused on problems encountered in government health care facilities. Health system research considers that health depends to a large extent on variables outside the health care and studies the health system as a whole.

Most of the health care researches has been carried out in developed countries with well establish health services for assuring the quality and cost containment. But there is urgent need for health system research in under developing countries to enhance the entire health system including health care problems.

Pathology Lab Management is a application that can be used in pathology to book a test for the patient, enter patient's details and after conducting the test, give test report to the patient, and provides efficient management of pathology lab records. Using system based software application provide dynamic record keeping and data processing with other advantages for entire pathology and for end users. The concepts and design of the Pathology Lab Management System module are to ensure that it can meet the demanding requirements that an ideal software should have to manage today's pathology labs. Since Labs are now considered to be one of the highest source of revenue. Therefore this module will help you to expand your business, process more samples, and increase your revenues.

In this proposed system every patient, receptionist and phlebotomist contain unique identification with their username and password so that every individual can address separately. No need to carry the hard copy of reports because at any time and from anywhere patient can download it and view it.

## System Architecture

This system architecture shows the block schematic of the system. It shows the various levels of the system and their individual functionalities. The system architecture is an efficient way of representing the working of system. It includes database, main modules of system. Database hold the all information of patient, Appointment details. Whenever monitoring and control the system are shown in architecture diagram.

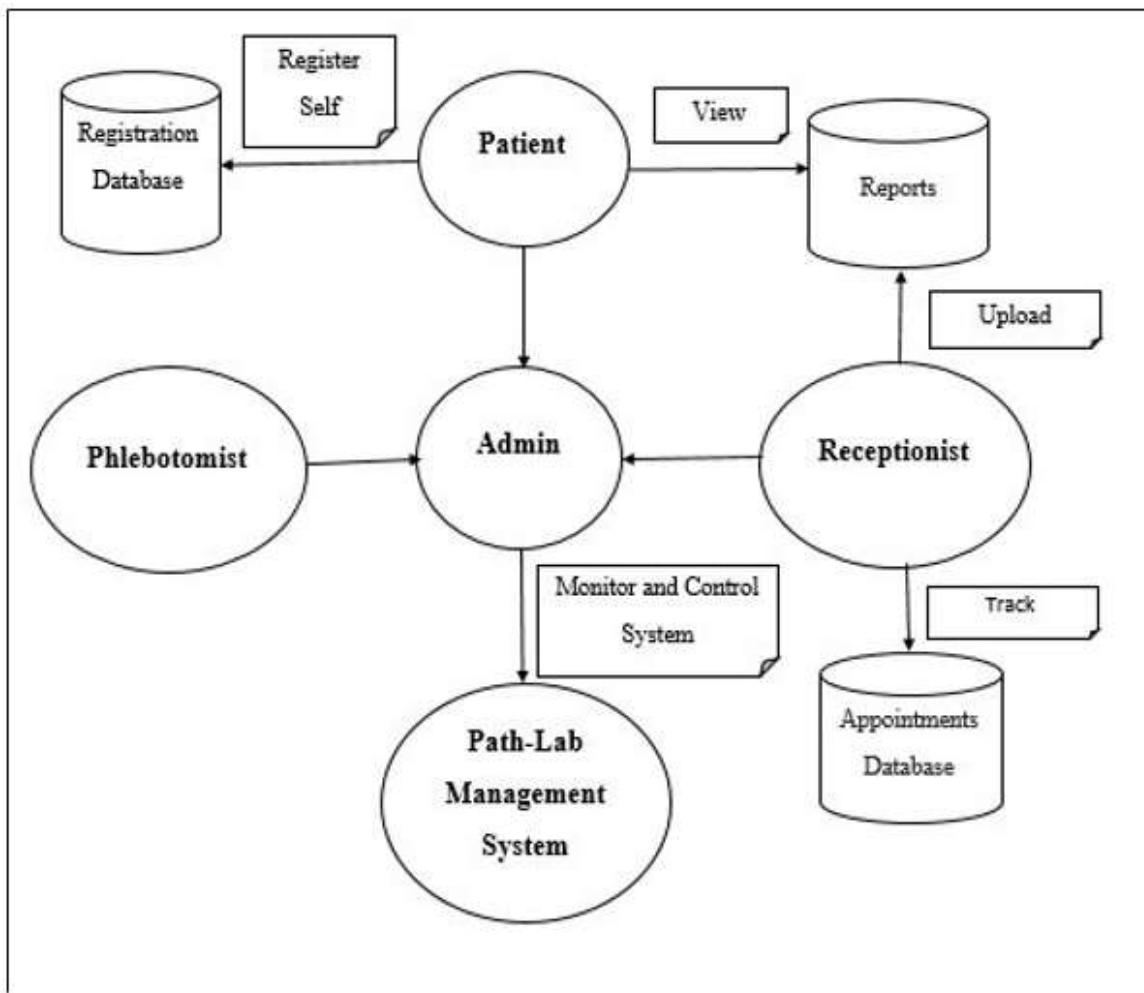


Fig. System architecture of Pathology Lab Management System

#### Software Design:

This system is design for android users by download the application. Basic idea behind the developing of this application is more people can use it.

This application is basically develop with the help of android studio. For creating layout and different forms it required PHP scripting language. PHP also help to manage look and feel of application. To check the authentication of the person it use java programming language because java having the feature of platform independency. To store the data into this system firebase data storage is use which is free of cost and it is run time data storage so that it help to maintain real-time data storage.

Android studio provide google map activity is use for map the region and also provide template that will automatically get created. To use google map it required Maps API key this API key is get from google. With the help of calculating latitude and longitude degree it give current location of people and also helps to find nearest available in that particular region. Location is get from GPS sensor and network. Location listener is use to capture on map and notify when the location is changed. Location manager also provide in this activity to notify the change in location request. It also provide the feature to set minimum time is refresh rate which is in milliseconds and minimum distance through the GPS. Location listener and Location manager are the permissions for the security which help to make provide security to the system. It uses Server Sent Events (SSE) architecture to continuously check whether the text file has been generated or not, and to automate the redirection process to the specific web pages, thus making the system real-time.

#### Database:

Database plays very important role in proposed system it need to available when it required with the features like data integrity and consistency. This system is combination of four modules with their datasets. Firebase is use to manage the database into this proposed system.

1 .Admin:

Admin contain all the records of patients, phlebotomists and receptionists. Admin can add update and delete the records of patients, phlebotomists and receptionists.

Patient:

Patient dataset contains NAME, UNIQUE\_ID, USERNAME, PASSWORD, ADDRESS, MOBILE\_NUMBER.

Phlebotomist:

Phlebotomist dataset contains NAME, USERNAME, PASSWORD, UNIQUE\_ID, MOBILE\_NO, DRIVING\_LIAISON-NO.

Receptionist:

Receptionist dataset contains NAME, USERNAME, PASSWORD, UNIQUE\_ID, MOBILE\_NUMBER.

2. Phlebotomist:

Phlebotomist contain the address of patient to collect the samples from particular patient. He can collect the cash from patient and update the same.

3. Receptionist:

Receptionist contain the historical appointment of patient and working time of doctors so that he\she can allocate appointment to the patient.

4. Patient:

Patient can search the tests, compare price of tests, and book the test and download reports.

## Working Modules

Patient:

Patient first register their information into this proposed system through register page. Patient can also add family member's information into this proposed system. After register the information patient will login with username password and search for city after selection of city he/she will search for different tests after searching test he/she will compare cost among different hospital and book the test.

After successfully booked test he/she will get message that message contain appointment details about test. He\She able to view the current location of phlebotomist who came to get sample from patient. Patient can pay cash by either online cash or by given to the phlebotomist.

After successful payment patient can download and view report at any time and from anywhere as per the need.

Phlebotomist:

Phlebotomist can view own patient to collect the samples. To collect the samples from patient phlebotomist will set live location from their system which patient and admin will view. After getting samples from patient phlebotomist can receive cash from patient and update the same into proposed system.

Admin:

Admin is the head of this system he\she monitor and control the system for that admin perform the operations like add pathology labs with test cast and address and manage the details of patient, phlebotomist as well as receptionist. Admin able to see live location of phlebotomist.

Admin have responsible to make payments of receptionist and phlebotomist. Phlebotomist payment is depend upon distance phlebotomist covered.

Receptionist:

Receptionist will assign appointment to the patient. Receptionist having history of patient's appointment. Receptionist also responsible for upload patient report with patient unique identification number.

## CONCLUSION

Healthcare is a very important field that needs immediate attention. The proposed system provides an inexpensive and efficient application for healthcare that can help in taking care of the patient's health by providing effective medical services at the right

time. This system will thus be beneficial for both the patient and the doctor in case of medical emergencies. In this proposed system pathology system is effectively used by patient. Patient can search nearest hospital to book the test. Patient also use this feature in lower possible cost. At anytime from anywhere patient can download the report.

## FUTURE WORK

In proposed system we can braille typing system used by people who are visually impaired. Blind people will also use this application in the same way normal people can use it. Blind people will be able to compare the cost of tests among different hospitals.

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