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## Hospital Management System Bridging The Bottleneck In Health Care Sector: An Indian Perspective

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### Abstract:

A software package which will facilitate the activities of both Govt. and private Hospitals and will provide an appropriate solution to the people. This software package will help government, hospitals and the common man. This will work in websites and apps designed for the Govt., Hospitals and common man. The algorithm and flow chart of the software being described in the paper. This software will help the government to verify the status of hospitals along with the services provided to people. The authenticity and valuation for the different services can be known to the govt. for initiating necessary future course of action. This website can give the status of the country globally in terms of hospital management and to maintain right ratio of health services to the population of the country. This will equally help the government to maintain clarity in the information regarding the health services standard with comparison to other developed countries.

**Key words:** Algorithm, Authenticity, Valuation, Globally, Information, Health Service

**Introduction:**

The biggest challenge to Indian in the coming years will be the healthcare infrastructure. Covid-19 pandemic has educated us globally that an epidemic can destroy a country's economy and financial power. This lesson as key input will definitely help us to fight this global challenge to protect human along with the technological development. Adequate Healthcare system is a great challenge to a country like India where urban and rural facilities are yet to develop. Although we developed a lot in terms of facilities but that is not enough for a highly populous country like India. The country has different categories of healthcare system as per the requirement and financial consideration. Today it became a great challenge for the government to identify the authentic health practitioners and healthcare system. An initiation should start from the government side to give information in portals to verify the authenticity of various healthcare practitioners, healthcare system and test labs. This research paper has given emphasis on a model designed to help the government to give direction to people and service providers for the betterment of the community.

**Literature Review:**

Most of the earlier research were primarily based on the functionality of personal health record system(PHR). Exponents of PHR developers need to understand natural issues pertaining to designing of security, reliability, and availability of patient's information (Win et al., 2006). Most of the managements are lethargic to embrace new technologies (Tang et al., 2005). Apart from the management, the paramedical professionals, technicians, lab assistants and specially the nurses resist to the use of technology (Bowies, 1997; Darbyshire, 2000; Mitchell and Sullivan, 2001; Schmitt et al., 2003). Key obstacles to electronic medical record were found to be: high initial financial costs, slow and uncertain financial payoffs, and greater physician time. Additional obstacles include difficulties with technology, complementary change in support, electronic data exchange, financial incentives, and physician attitudes (Poon et al., 2004).

Hospitals depend heavily on software vendors for all their IT solutions. The hospital software vendors extend their product line and services to cover the general purpose and the domain specific Open Source Software (OSS) health products (Munoz-Cornejo, 2007). However, the OSS faces huge issues such as standardization and integration, human-computer interaction and the structure of information that affects adoption of HIS (Hersh, 2004; Wears, 2005; Ismail et al., 2010; Khalifa, 2014). Sharing of information among

the various departments within the hospital is also a major challenge in the adoption of an information system in a hospital (Jha et al., 2009). Studies have also highlighted other impediments like dearth of sizeable benefits, scanty incentives, payer–provider relationships, market space rivalry and privacy of legislation (Sellitto and Carbone, 2007; Kaye et al., 2010; Singh and Muthuswamy, 2013).

Time has arrived Indian hospitals must improve the service quality by embracing information technology in order to meet the global benchmark as well as ever increasing patient's expectations (Itumalla, 2012). The adoption of HIS incurs huge investments, in terms of installation of technology, increasing the cost of the diagnosis and treatment which acts as a challenge to HIS adoption (Kalpa, 2012). Shortage of experienced technical staff, lack of acceptance of hospital information systems & software are important bottlenecks for the adoption of HIS (Khalifa, 2014).

### **Objectives:**

The healthcare information systems designed by the different researchers are based on the various factors associate to healthcare system. Here the research based on the govt. authorisation portal to verify the level of standards of health services and Pathlab tests. The objectives here to know the government portal or any authenticated sources available to verify the various healthcare services available in India also to design a portal to make easy for the patients to verify the authentication in terms of values and financial constraints.

### **Methodology:**

Methodology adopted for this research work is based on the secondary data. Various models available in India are accessed and verify for the new model designed. A computerised framework designed and the key players' role and input of the data process mentioned.

**Analysis:****Field of invention****Advantages to Govt.:**

- Controlled by Government
- No manipulation in price
- Upload of prescription to verify the authentic doctors
- Price fixation for all category of tests
- Assigning the authentic Pathology lab for public
- Location determination to verify the concentration of path lab as per the density of population
- The report will be available at the govt. website and the patient can get by putting the code assigned to them.
- Allotment of patient as per their location and capacity of the Pathology Lab
- Reports data will be available with the Govt. website and Govt. can utilize it for future prediction about the healthcare services
- Any particular time Govt. can get the statistics about the disease status in India like, Diabetes, TB, Dengue etc.
- Govt. can take action time to time with the report.
- Govt. can put stars on the basis of authentic reports

**Advantages to Hospitals/Pathology Lab:**

- All the Pathology lab will get the business all the time
- Effective utilization of employee and salary
- No price discounts from patients' side
- Effective utilization of medical equipment and aids
- Locational disadvantages will not face by the Pathology Lab

**Advantages to Patients/Common man:**

- Patents will not cheat by the Pathology Lab
- Patients will get uniform price
- Lab reports will be authentic
- Patents can know the authentic Doctors
- Patients will not carry always the pathology lab reports as it is available in Apps
- No fear of keeping record of reports

**Support Industrial Applicability:**

- Software company along with Govt. to design the Apps for Android Phones
- Support services to Pathology Labs
- Support services to Patients
- Allotment, Location based time allotment for patients (7.00 pm to 10.00 pm)
- Report received Latest by 1.00 pm and Displayed by 2.00 pm

**Background of the invention/Prior art**

- Same as literature survey.
- Describe the invention, by clearly distinguishing it from such a closest prior art.

**Objects of invention****Prior Invention:****Govt.:**

- No Government control over the authenticity of the report
- Govt. does not have the knowledge of the authentic doctors practicing and path lab operating in the state or country
- No knowledge of number of Authentic Pathology lab with expertise Technicians
- No knowledge about the Disease status in India
- No knowledge of Infrastructure facilities for day to day tests

**Hospitals and Pathology Labs:**

- No methods to keep records of patients' test for more days
- Multiple testing and more time consumption
- Unable to control the crowd for tests
- Test records in print form for different departments of the same Hospital which is a cumbersome

**Patients:**

- Test records available in Print form which may lost
- More cost for same test again and again
- Unable to know the validity of documents for all the hospitals

**Claimed Invention****Govt.:**

- Government control over the authenticity of the report
- Govt. will have the knowledge of the authentic doctors practicing and path lab operating in the state or country
- Knowledge of number of Authentic Pathology lab with expertise Technicians
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**Hospitals and Pathology Labs:**

- Keeping records of patients' test for more days
- No Multiple testing and less time consumption
- Able to control the crowd for tests
- Test records in apps for different departments of the same Hospital which is a easy

**Patients:**

- Test records available in Android Apps
- No cost for same test again and again
- Valid documents for all the hospitals

## Summary of the invention

### App Design:

Name, Age, Code No., Password or OTP, Location, Disease name, Types of Pathology Lab tests, Allotment of Pathology Lab (Govt. or Patient) available nearby

### Steps Followed in Apps (Patients)

Step1: Patients Registration

Step 2: Types of Disease

Step 3: Types of Test selection with price

Step 4: Location Selection

Step 5: Lab Availability with time

Step 6: E-payment or COD

Step 7: Code Generation

### Steps Followed in website by Pathology Lab:

Step 1: Patients verification with code of Patient

Step 2: Patients payment mode verification

Step 3: Patients test identification

Step 4: Sample collection and report generation

Step 5: Report uploads on the govt. website

### Steps Followed by the Govt.:

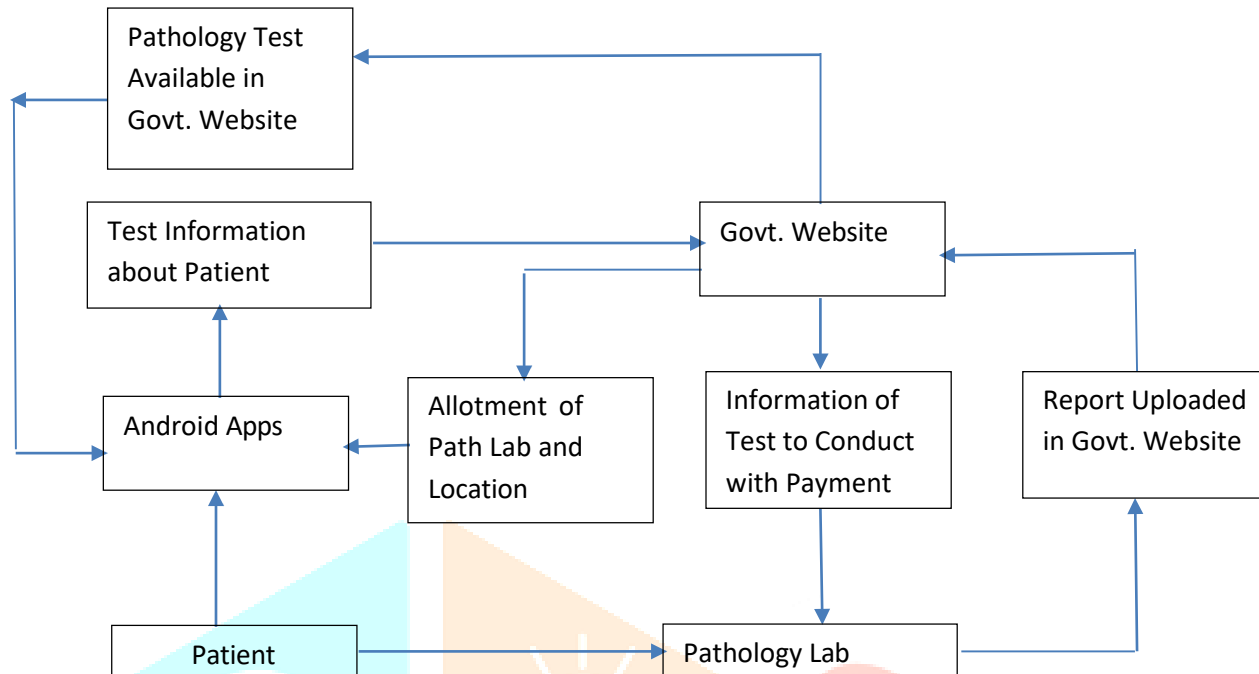
Step 1: Verify the report with pathology lab code

Step 2: Display in the website with the patient's code

Step 3: Keep records in the website for future action

Step 4: Analysis of statistics for future infrastructure for medical services

## Brief description of the Model



## Detailed Description of the Invention:

This invention is related to the keeping the record and smoothening the function of health care services in India. This is the first time programme to inform, educate and make them associate with the e-service provision of government to protect and enhance the healthcare services in transparent basis. This platform will definitely help the govt., along with hospitals, pathology labs and above all the patients of the countries.

### Patients:

### Registration:

### Input:

Register the Name, Age, Sex, location, Phone number, Email to the app to register yourself as a patient.

### Output:

A code number will be assigned by the government for each patient.



**Data Entry for Patho Lab Test:**

1. Enter registration number along with OTP for each time entry to test form available in Govt. apps.
2. Select the types of Test:
  1. Blood Test
  2. Sputum Test
  3. Others Specify
3. Select the various tests:
  - a. Diabetes
  - b. Lipid Profile so on
4. Select the Labs along with the Price rates and stars assigned by review:
  - b. Labs with star
  - b. Tests
  - c. Prices
5. Select the on the basis of availability Time: From 7 am to 12 pm

6. Final allotment with time and centre

**Test:**

1. Patients will reach the Patho-lab centre at the stipulated time period as per the apps.
2. They will be in the que if the other patients will be available.
3. Patients will give their sample as per the entry and return back to home.

**Result:**

4. Patients will get their report in the once they will open the app by 2.00 pm.
5. Patients can save to see the report for the future.
6. The report will create a code number which is same for patient, pathology lab and for government.
7. Doctors from any hospital can see the report by entering the code in the website.

**Government:****Input:**

1. Assign Code to patient
2. Assign code to Pathology Laboratory
3. Assign code to Pathology Doctors
4. Assigning Highest number test per day to each Lab

## Output

1. Report of profile of patients
2. Report of Profile of Hospitals and Pathology Laboratories
3. Report of the Patients from different Labs.
4. The website will keep the data for future course of action related to functionality of healthcare system in India.
5. This data can be grouped on the basis of location, Diseases, Age group, pathology lab statistics etc.
6. Government committee verified reasonable rate to all the patients
7. Fund transfer to respective hospitals or Pathology labs.
8. Display of report in websites with code number

## Hospitals or Pathology Laboratories:

### Input:

All the labs and hospitals has to register on the basis of location, employees' numbers, Pathology test spaces, kits availability, operational timing and closing, sample time vs result analysis time.

1. Name of the Lab:
2. Location of the Lab:
3. Qualification of the Technician:
4. Laboratory Certificate:
5. Pathology Doctors Documents for verification:
6. Patient capacity with minimum collection time:
7. Average Test kits availability:
8. Operation Time:
9. Closing Time:
10. Test Result Time:
11. Closing Uploading time:

**Output:**

1. Patient Code:
2. Patient name:
3. Patient Age:
4. Patient Disease:
5. Patient Location:
6. Types of Test:
7. Types of test with rate chart

**Conclusion:**

This package is going to help the people who are completely busy with their hectic schedule or engaged in services which are more confidential and protected. This solution will definitely enhance the productivity of the people who are unable get time for their own problems.

The focus has given to the problems identified by the patients during the search of medicals or path labs to go through various tests. The model if adopted will give tremendous help to the public along with the government to keep distance from all kind of uncertainty and mishap.

**Future Studies:**

As it is the preliminary design of the portal to access by the various health service organisations and patients so lot of issues may come when it be operational. The expectations are to minimize the huddle to run the portal smoothly. In future most developed models can be developed which can be operated through the mobile app.

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