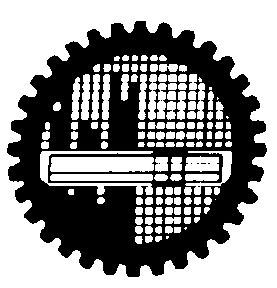
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AUTOMATED HOSPITAL & INFORMATION MANAGEMENT SYSTEM

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The goal of our project is to automate a hospital so that the hospital may give better services to its patients. Fully automated hospitals are rare in this country , because it’s costly to implement and even more to maintain. But it is a necessary sacrifice to provide people better service and to make maintenance of the hospital easier. In the first increment of this project we analyzed the current system of Delta Hospital Ltd , Kalyanpur , Dhaka and we are working to complete its incomplete automated system.

**Existing system analyzing** :

1. **Patient entry management**: Patient entry is temporary. No permanent patient entry is created.

In our system we want to create a permanent account for every patient who has ever been treated in our hospital. When he registers in the system we will provide him a card which will bear his registration number. The system will also keep his medical history in his account.

2. **Pharmacy Management**:   The pharmacy of Delta Hospital is not automated. A salesman manages the store and gives the patients medicine.   He also manages the available medicines in the store and money from the sales.

We want to automate the store. A computer will be placed in the store and it will have a database which will manage the price and number of medicines available in the store. It will also warn the store keeper of the medicines which are running low. The database will also manage the profit and loss made by store.

3. **Indoor Patient Management**: When a patient wants to get admitted in the hospital he first has to fill a form and pay the entry fee , when he is discharged he has to pay money for his treatment. He is issued a cabin or a bed and a doctor is made in charge of this patient. All this are automated.

But the patient has to buy medicines himself or by his relatives. We want to provide him medicine directly from the store and charge him for those medicines when he discharges.

4. **Outdoor Patient Management**: When a patient wants to visit a doctor , he calls the assistant of the doctor and makes an appointment by phone. Each doctor has different assistants and he had to call the one he wants. He visits the doctor and given a prescription for future references he has to keep those prescriptions and bring them with him.

We want to reduce the numbers of assistants. A person will call only one number and will be able to make appointment with any doctor who is available.

5. **Employee management** : An employee database is kept in the hospital. It also helps to give the employee salary and keep track of their performances.

Duty schedule of the employee is done manually. They keep track of their duties by a huge log file. We want to automate the duty scheduling job.

6. **Patient Database Management**: No patient database is kept for future reference.

We will update the prescription and disease diagnostic reports to database for future references and the patient and doctor will be able to access them for their latter treatment.

7. **Disease Diagnostic and Report Delivery Management:** Report delivery is manual.

We want to send the report to the patients email address if he has any and also the hard copy will be available for the patient. The reports will be automatically uploaded to patient database.

8. **Accounting**: Accounting section of delta hospital is automated. Balancesheet , stock ledger, profit and loss calculation, salary management, cash book maintaining and other jobs are done properly in the automated system.

We do not find any problem in this system. This system is fully automated. We do not want to update or change it.

9.**Billing**: Billing system is also automated. When a patient discharges the bill is automatically generated for indoor patients. But outdoor patients bill is not automated.

In our updated system medicine charge will be added to the bill and outdoor patients bill will also be automatically generated.

**Problems Our System May Face:**

1. In medicine store, as the maintenance of medicine store will be done by a store keeper and for security reason this can be accessed by admin password. In that case sometimes unavailability of the store keeper can cause temporarily disturbance to the supply of medicine.

For that reason we will have an admin who will have access to the whole database.

2. In case of unavailability of a doctor some serious problem can occur such as maintaining serial or time.

We will maintain queue automatically and in case of unavailability of a doctor will be informed by sms.

3. Sometimes for serious patient or injured patient who are for the first time in the hospital, it will be tough to register him/her before treatment.

Then patient will be given emergency medicine and treatment, later he will be registered.

4. According to Hospital authority,though many young doctors are interested in writing prescription in computer, some senior doctors are not very familiar with computer and they are not quite interested writing prescription in computer.

As a result sometimes there needs an assistant to do that job or snapshot of the manual prescription can directly be uploaded.

5. Sometimes price of medicine in hospital medicine store is costly than the local market price.

So unless the serious or emergency case, patient can buy medicine outside medicine store from local market or anywhere they choose.

6. The implementation of the existing system will need a lot of hardware and they are costly. Even they need to be maintained by experts which will cost the hospital more. And this cost will be paid by the patients indirectly.

7. To maintain the database and hardware , the hospital needs Database Administrator and Engineers and the hospital will not have that kind of manpower.

So another employee section will be formed named IT Department.

8.Database of a patient is a kind a personal info so sometimes patient may feel embarrassed to make his personal info available for authority. We have handled this situation that none of the authority can access any patient's data unless the patient permitted. When anyone such as doctor or authority want to access the data of the patient then an automatically a 4 digit pin code will be sent to patient's phone number via sms which was enlisted in the time of registration. Yet the data of a patient can only be modified by doctor and all the test report will be uploaded by diagnostic lab authority. In case of unwillingness of a doctor an assistant can upload doctors manual prescription's snapshot or modify data of a patient with doctor's permission. Patient can't update or modify any of his data.

**Is the system worth implementing?**

The system is worth implementing. Because it reduces patient hassles to a great extent.The project is suitable for any hospital in Bangladesh  but it will be very useful for the government hospitals very much.

--Our patient management sub-system uses one account for each patient which helps reducing overhead of form-fill up every time a patient comes to hospital.This registration number will also keep his medical history.

--Pharmacy management will help patients getting medicine at their emergency period without any hassle. There is a transparency in this system. So patient is free of overcharging tension. Also if there is shortage/scarcity in medicine, store keeper will inform the office administrator for this reason.

--There is a hassle in outdoor patient management and consultant doctor scheduling. With the help of unique registration number, it can be reduced.

--As the jobs of a hospital is tedious , an automated employee duty scheduling can help its employees i.e. doctors,nurses,ward boys know about their schedule before which will improve their performance and consistency.

--There is a common phenomenon of losing previous prescription and other radiologist data for the patients in our country. Also this process of preservingmedical history is very tedious. So saving patient history in the hospital server is  worthy of doing for this project.

--Electronic diagnostic report will reduce consumption of paper resulting in a environment friendly process.

--Making the billing process combined will be helpful for patients than the traditional system.

**What will be its contribution/benefits?**

-Less time wastage in making doctor appointment.Approximate time of appointment can be known previously which will reduce the wastage of working hour.

-Automated Employee Duty Scheduling.

-Full Patient history at one place.

-Smarter way of archiving data

-Easier access for both doctor and patient.

-Advanced patient privacy.

-Electronic diagnostic report.

-All bills at one place.