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| Thesis Title | “Web and Mobile Applications for E-hospital Management system” |
| Research Field | |
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Abstract

Hospital Management System (HMS) is a computerizing scheme used for simplifying several efforts of the working in a hospital. The system deals with all the requirements of different hospitals to offer efficient health services to patients and employees and related information for long term. In this thesis, web and mobile based applications for two of hospitals in different cities at Iraq (Mergan in Babylon and Ibn-Alnafees in Baghdad) is proposed. The proposed system provides the patients, doctors and related working staff with the ability of performing the required health service in an efficient way. It includes four main parts: built database, optical fiber local area network, designed website and mobile applications. The web application is connected with the built database for processing and storing the recorded health information for patients and other employees.

Moreover, the mobile application is introduced for alarming, calling and chatting services with the doctors. The built database is stored in two subservers at adopted hospitals and hosted server supports website applications. The sub-servers database is used for storing the information inside each hospital, while the hosted database server is utilized for saving the shared information of doctors and patients depending on the requests done by users. The proposed system offers uses the hosted server for ordering medicines from considered warehouses by the hospital's pharmacy. The pharmacy sends medicine's orders when such medicine quantity being below the 20% of the maximum allowed threshold.

At the other hand, the optical fiber computer network is adopted to cover the requirement of high data rate used to transmit text files, images and videos amongst the hospital's departments in efficient way. It is important to note that the website and related pages are designed using PHP, HTML and CSS environments, the database is built utilizing MySQL version 5.7.11, the network simulation is performed using OPNET simulator, while the mobile application designed using ANDROID STUDIO. A prototype of local area network is implemented in a laboratory to test the proposed system in real-time manner. Five computers are considered to represent a hospital's departments including: Registration, Doctors, Laboratory, Radiology and Pharmacy. Different functions, services and activities offered by the proposed system are considered in the evaluation as case studies. These case studies adopt the expected workload happened in the hospitals. The obtained results show the outperformance of the proposed system in terms of accuracy and resolution for sending images and videos with a minor resolution degradation for long distance of ratio 5%. Additionally, time saving is noted by reducing the consumed time of transferring the test results and related information between hospital's departments. In addition, the using of papers is reduced efficiently.

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