

Access to medical databases through Internet tools

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Modern hospitals use computer systems to access patient's medical record or information about hospital resources stored in medical databases. The functionality implemented by these systems is usually accessible from inside of a hospital. This restriction implies that the functionality is somewhat confined e.g. not allowing a doctor who is working at home to read the results of patient's examination carried out in the hospital.

In this paper authors' opinion the current technical advance gives the opportunity to cancel these limits. The progress in Internet technologies, including web-services, allows making almost the whole functionality available outside the hospital not only preserving it, but even extending it and, what is most important in medical systems – maintaining the security. Modern technologies permit to build secure systems easy to get from anywhere, anything and anytime.

The goal of this paper is to present the work carried out by Dept. of Comp. Science, University of Mining and Metallurgy in the confines of 6WINIT grant in the area of accessing medical databases from the Internet. Two systems: CAS (Clinical Appointment System) and m-bookMed (Medical Services Booking System) are being developed.

CAS allows patient to make an appointment with a doctor, in a specified clinic, for a particular examination. The patient suggests time and the appointment clerk at the clinic verifies it and adjusts the final visit setting.

m-bookMed is much more sophisticated. It uses all required persons and devices current schedules to find ones that are available for required examination. This system is not only dedicated for patient but also for general practitioners acting as patient representatives.

Both systems have been implemented using EJB and JSP technologies. The former allows to access databases from Java programs having built-in support for transactions and security and ensuring high level of scalability and reliability. The latter is used to make the application's functionality accessible through web browsers.

The very important aspect that has been emphasized during systems requirements analysis was the security in the context of authentication and authorization. Systems use chip cards containing encrypted data identifying its owner to authenticate its users. The less valuable data can be accessed with standard login/password authentication. User access rights are verified by the systems against the permissions predefined by systems administrators.

CAS pilot deployment is to be performed in one of the Jan Paul II hospital clinics to confirm its usability and prove the right technology choice. In this paper authors' opinion creating systems oriented on Internet that access medical databases increases their functionality and helps to improve patient care.