Students Tracking System Using Radio Frequency Identification (RFID)

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ABSTRACT

RFID is one of the most common technology used in identification nowadays, It's an easy way to identify both human and object without any physical contact with the identification reader, basically it's consists of the following, A tag which came in wide range of shapes such as ID cards, Reader which use radio waves to retrieve data from the tag, and, Database were information are stored to process it by using any application.

The aim of this project is to develop a tracking system to automate the students' attendance taking for all lectures, labs…etc inside the university. Because, King Abdulaziz University (KAU) concern for the students attendance as a part of its regulations, Consequently, the proposed model uses Radio Frequency Identification RFID technology to identify the attendance of students by using the tag which embedded into the students university identification cards. Accordingly, the proposed model would ensure that attendance tracking for the students is more consistent, easier, and safer than current used system based on paper which is time wasting process.

The proposed prototype model uses PhidgetsRFID reader and tags which are works through passive communication. Such model is analyzed, designed and implemented using UML standards technology. In addition to Visual C#.Net in Visual Studio 2008 environment, as well as the Phidgets API in Windows XP SP3 environment.
The reliability of the proposed system has been tested prior to onsite installation, to assure the functionality of the system, and to guarantee that it is operate seamlessly and efficiently, the test was done at Faculty of Computing and Information Technology in two computer labs, (LAB 001 and LAB 002).

Furthermore, a full gap analysis was done to achieve potential performance, and to identify any possible problems or particular challenges that might face us during integration of the proposed system with the On Demand University Services ODUS.

Moreover, the proposed project fulfilled the university students ID issuing, as well as assigning the RFID tag ID. Beside, on-time monitoring for the readers status, plus a friendly user interface with capability for issuing detailed reports.

All project steps mentioned above were implemented to ensure the smooth shifting process to the new proposed system within minimum time. The proposed system is considered as a preliminary step in the improvement process of the electronic services at the university, which help the academic and the administrative stuff.
As well as providing services to address information to all of them in order to achieve the goal of being a paperless university in an era of smart technology.

Finally, we can say that the scope of this project is to automate the attendance tracking process with a prototype model reader to simulate the real use of such system at the university. Also, in the future the system can be used in other purposes like using this technology with a mobile reader, so we can use the proposed system as identification method for students in the exams, controlling the Air-conditions according to the system information, and in pilgrims tracking.