A Smart Classroom Application: Monitoring And Reporting Attandency Automatically Using Smart Devices

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For taking attendance in a classroom, generally instructors collect signatures of the attendees. Then, at the end of the semester, those signatures need to be counted and reported. This process causes waste of time and effort for both instructors and attendees. Besides this process is very prone to human errors. Moreover, in crowded classes, there could be some misuses of this process. In this study a smart classroom application is proposed and developed in order to get the attendance of the attendees in the classroom environment. In the design a low-energy Bluetooth device which has its own id, is located in each classroom. Id of the low-energy Bluetooth device and the name/number of the classroom that the device is located are matched and stored in a central database. In addition to this information, the name of the courses given in that classroom and their time tables are also stored in the central database. So in the database the weekly course shedule of the classrooms are available. In addition to this central database infrastructure, a mobile application is developed that can run on both in mobile phones and smart watches. The users first install the application on their own smart devices. Whenever an attendee enters to the classroom, the smart device and its application interacts with the low-energy Bluetooth device. The attendees' id, the id of the low-energy Bluetooth device that the device interacts, the day and time of the interaction are sent to the central database by the smart device. Using these information the name of the attendee and the courses that he/she attended are matched using the id of the attendee, the id of the low-energy Bluetooth device, the day and time of the interaction. Those matching information are also stored in the central database. The records in the central database are used to create any automatic reports, i.e. the attendance status, the time of the attendance, and the classroom (course) of the record. The advantage of the proposed system is that it is a fully automatic system the records the presence of the attendees, it generates automatic attendance reports, it does not require any extra device except installing a mobile application onto the smart phones or smart watches of the student, it can be deployed with a low budget. The proposed system is tested in real classroom environment and it is proven to be operational.