RFID based Devices for Educative Environments

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Abstract. Educative environments such as universities and schools are involved with advancements of academic infrastructure using computer networks. RFID based devices are also used around and in the educative environments, for instance, library, car park, laboratory etc. However, there is a problem of organizing curricular activities and encouraging students' learning capabilities with peaceful way. In this paper, we design a theoretical model of RFID based device, which helps to improve the curricular activities and students' learning capabilities. When RFID based devices are installed around or in the educative environments, the class time will not be wasted at all because registrations of students are monitored automatically. Both teachers and students maintain their punctuality, which is the fundamental issue of increasing students' activities and memory capacities. Learning attitudes depend on the students' physical and mental fitness at the time. In this situation, RFID based prediction system can be used as new device, which monitors the students' fitness and provides quick resolution to encourage the student to be a good listener or active participator in the class.

1 Introduction

Evolving technology with RFID based devices is the one of the growing areas in all profit and non-profit sectors. In this paper, we are focusing most of the facilities used in the non-profit organizations such as schools and universities etc. Scientists invented a lot of new technologies, but they have not been used properly to public services. Educative environment is the fundamental issue to all problems in the modern world [9]. If we provide RFID based devices for educative environments, at least 70% of the people will have or achieve same understanding and capacity about the current problems of the world.

Learning capabilities are real challenges in the real world. Every student must be protected from the fundamental issues. Academic frauds are all over the world, and they should be identified using RFID based devices straightaway. Then students will understand the value of education and develop their learning capabilities [8]. This device should help students who are struggling to choose the correct path of the academic interesting. There are multiple options for choosing correct path in the academic route on the basis of final achievements. Some students desire to achieve only qualifications; others want to earn high salary at the end of the academic period.

Alzahrani A., Thayananthan V. and Qureshi M..
RFID based Devices for Educative Environments.
DOI: 10.5220/0004096401310136
In *Proceedings of the 1st International Workshop on Interaction Design in Educational Environments* (IDEE-2012), pages 131-136
ISBN: 978-989-8565-17-4

There are plenty of options, which may be analysed through the RFID devices or systems used in the educative environments.

The games have to be used for good purposes, but some of the games are not suitable to students. Even though some of them are appropriate to a certain age groups of students, thinking of games which are not suitable to a certain age group of students is wasting their valuable time in the educative environments. In order to avoid these problems, RFID based prediction system can be introduced as a new device which is going to solve a number of potential problems in educative environments [7].

The e_reader is available for those who are interested to read academic books and relevant books for academic supports. The e_reader can be interacted using RFID devices, which will provide instance performance of students' reading capacity. The e_writing is also important to analyse the students work and contribution of academic learning in the educative environment.

The rest of the paper is organized as follows. Related work of RFID based devices for educative environments in Section 2. We discuss proposed RFID system in Section 3. In Section 4, recommendations are discussed. Final conclusion will be in Section 5.

2 RFID based Devices

There are plenty of RFID based devices used around or in the educative environments. In this paper, specific RFID based devices will be considered as a basic understanding and illustrations of the potential problems. This device will detect what students have done for last 12 hours because physical and mental conditions should be relaxed to comprehend the lessons. This device will help not only to students' learning and listing attitude but also it provides maximum improvement for academic curriculum used in educative environment.

2.1 RFID based Systems

Educative environments use a number of RFID based systems given below.

- Notification system;
- Experimental system;
- External monitoring system;
- Open learning system

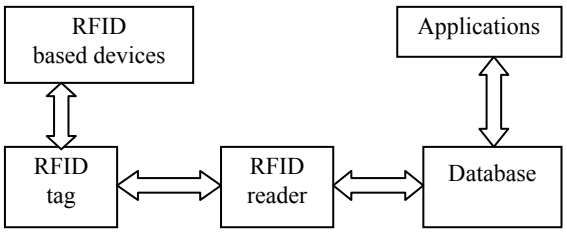

Fig. 1. RFID device interactions in an RFID system.

RFID based devices are dominated in most of the applications [3]. Figure1 shows the device interactions in RFID systems, which are already implemented in some campuses [4]. This system can be used for students' activities whether their applications are specific or multiple purposes in the educative environments.

RFID campus is one of the examples for the educative environments. Above mentioned systems are elaborated with potential wireless technology [1].

2.1.1 RFID and e_reader

Reading habits should be monitored through the counting words per hour and some quick questions. In order to implement such a system, RFID based device can be implemented with e_reader, which is connected to a network. Word counting is monitored daily, and performance of the students' participations is recorded in the server. From these points, students' reading ability and behaviour can be monitored.

2.1.2 RFID and e_writer

It is another way of improving students' learning capability in the educative environments. Reading and writing are comprehension of academic subjects, which should be monitored during the academic hours. RFID tag and e_reader must check correct identity of the student who participates in writing. The actual design of the proposing system will be explained in the next section.

2.2 RFID in Educative Environments

RFID library is the one of the best example for educative environments where RFID based devices are already implemented. The question should be raised "do all students use library or any educative environments for their correct academic benefits?" Only 40% of the students understand the problems for increasing their knowledge. Rest of them is using these educative environments for just pass the exams and struggles when they face the real life. It is not acceptable in future educative environments because each student's work is monitored throughout the academic period.

2.2.1 Activity for Specific Applications

Virtual laboratory for certain age groups in educative environments can be built using RFID based devices, which help students to interact the laboratory exercises without wasting time, materials and testing equipments again and again. As mentioned in [6], RFID devices can be implemented in where same experiments are simulated repeatedly. Hence, virtual laboratory and RFID devices can be used for specific applications.

2.2.2 Activity for Multiple Applications

According to [2], activity for multiple applications can be developed and encouraged the students' learning capabilities in the educative environments.

3 Proposed Design

In this section, basic model of the RFID based device is designed with reading and writing interactions. Following figure explain the details of the design, which can be used in educative environment.

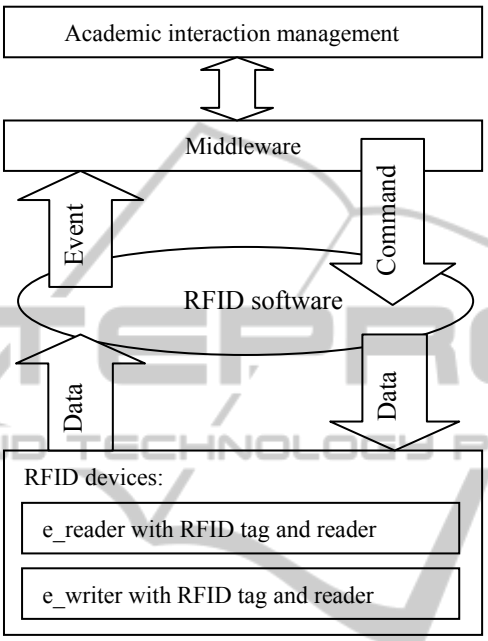

Fig. 2. RFID system for educative environment.

As shown in Figure 2, the proposed system can be designed with RFID devices. The reading part of the block diagram shows the word counting and interaction between the students' participations during the fixed period. The RFID device will monitor the exact results dynamically. Also, statistical details of reading habits will be accumulated for overall performance of the students' behaviour.

The writing represented in Figure 2 counts words as well as security because interaction between the particular student and his/her writing should be monitored dynamically.

3.1 Benefits of Proposed RFID System

It provides plagiarism detection dynamically to those who don't involve in enough reading, and writing in their academic life. Every student must be involved in reading and writing about their subject, which provides the fundamental knowledge of the concept. Students' real hard working must be monitored through this system.

4 Recommendations

Following recommendations are very fundamental issues in the current educative environments.

RFID based device will change the student's attitude around the world and encourage to understand the academic values. Detecting the student ID and name of the student who plays bad games, which are not suitable for that particular age is the important feature of the device. Most of the bad games are supported by older people who don't understand the academic value. The bad and violent games are not suitable for certain ages but still they are used uncontrollably in most of the places around the world. The students' learning capability is changed after they play such bad games within the educative environments.

World is facing bad economic situations and global worming effects. Why? Children are terrified by the bad games which creates the unfit physical and mental conditions when they are studying in the educative environment. Children are the future of the world.

5 Conclusions

RFID based device will help to encourage the student's activities in the educative environments. It also increases the memory capacities because students are occupied with interactive programs when they are in the class rooms.

Listening with interactive programs using e_reader embedded with RFID tag increases the observations and real actions in the educative environments. Using e_writer, students will be able to check their plagiarism issues within the class room because it is still depending on RFID network systems.

We hope that all the children will get maximum benefit through this device, and they will be encouraged to follow the academic principles for real life.

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