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SMART SCHOOL MODEL FOR SYRIAN EDUCATION TO OVERCOME FEMALE EDUCATIONAL ISSUES

Nour Mahmoud Bahbouh
Lecturer of Information Technology
Islamic University, Madinah, Saudi Arabia
Nour_ita1987@hotmail.com

ABSTRACT

Ongoing conflicts in Syria have seriously affected all aspects of life and in particular that of the education. As one would affect, the crisis has devastated the condition of children and women, millions of have been deprived of basic needs. In particular, they do not have safe environment for schooling. This has created a lot of anxiety and anguish among the parents who continuously look for other avenues. The war in the country has displace millions of children and women to neighboring countries and some have taken refuge all over Europe. Fortunately, ongoing revolution of technologies and communications has restored the hope for these people to fulfill their educational needs. The technology can and should be used to find alternative ways of teaching and learning. This research proposes a comprehensive educational model with two main components, the first one employs the Internet of Things objects for creating smart schools and enabling parents to track their children from the moment they hope on to the school bus their return. The second one is a distance-learning framework, which enables women to continue their studying from their home or their new places of living. Moreover, the research shows the possibility of exploiting the suggested model for providing other advantages on the issues of feeding, health, and transport of children and women.

Keywords: Education, Syrian women, children, smart school, IoT, RFID, LBS.

INTRODUCTION

Millions of people in Syria have been adversely affected by the crisis as a result of wars and conflicts since 2011. This indeed is the largest humanitarian crisis of the 21st century impacting security, food, housing, health, work, and inevitably education (Guha-Sapir & Rodriguez-Llanes, 2015)(West & Isotta-Day & Ba-Break & Morgan, 2017). As in most wars and resulting crisis, women and children are the biggest losers despite their innocence. On the contrary the women play a significant role in restoration of peace and harmony (Asaf, 2017). Often conflicts displace many people, nevertheless some of whom may consider themselves to be lucky to be alive.

We all know that the Syrian conflict has displaced millions of people who have taken refuge in Turkey, Jordan, Lebanon, some of them trickling to Europe. The costs of caring and creating a normal life for them has become among the most important challenges faced by host countries and the United Nations in general (Magalhães & Campina, 2018)(Abdin, 2018). As of 2017, more than five million Syrian refugees had been displaced, of whom 24% were women (Cherri & Gil Cuesta, 2017).

In 2016 annual report, Human Rights Organization focused heavily on the education side of Syrians inside and outside Syria, and pointed to many obstacles and barriers that deprived half of Syrian students of their schools during 2014 and 2015 (Sirin & Rogers-

Sirin, 2015). The most important of these challenges was the difficulty in reaching schools or universities, especially for children and women, in addition to language barriers in countries of asylum, cost, or location, as well as a lack of resources and others. Note that women need more education in these circumstances because their opportunities to work are less than males (Aras & Yasun, 2016).

Many researchers have discussed this issue and cited the experiences of Syrian children, women, and students in the various refugee camps. Unfortunately, this exodus has also resulted in large number of young girls marrying earlier instead of going to schools. Circumstances have also emerged which make the plight of female education a complex issue as it is often associated with religious considerations. These aspects were studied and backed by a qualitative study on women in Jordan's camps (Hattar-Pollara, 2019).

Other studies have confirmed the same difficulties and previous problems facing the Syrians in Lebanon, Egypt and Turkey (Freedman & Kivilcim & Baklacıoğlu, 2017)(Culbertson & Constant, 2015), and indicated the importance of interest in education and its quality to develop an educated generation and a conscious women system which are capable of rebuilding their country or succeeding in coexistence naturally in other countries and acclimatization to local students, as discussed in a special study on Syrians in Britain (Arar & Örücü & Ak Küçükçayır, 2019)

Unfortunately, despite all of these studies and research, it was only highlighting the problem without providing actual solutions to overcome it, and despite the importance of the schools 'role, alternative solutions must be sought in such circumstances and challenges (Crul & Keskiner & Schneider & Lelie & Ghaeminia, 2016). Therefore, some research presented ideas to urge children to learn through the use of digital games (Sirin & Plass & Homer & Vatanartiran & Tsai, 2018), but remained small ideas that did not put solid solutions to the issue of education in the absence of security, stability and increased costs in light of the difficult conditions experienced by the Syrian woman first and her family as well.

This research is also concerned with the problem of education in the Syrian reality, especially on women and children, and works on proposing an effective solution to address this problem and deal with it by employing modern technology to facilitate difficulties and remove obstacles for the Syrians in their educational attainment.

Literature Reviews

With the great development in the means of technology and communications, many new concepts have emerged in many areas. E-learning is one of the new concepts that has spread widely in recent years, especially with the proliferation of social networking sites, various media sites, and various academic and professional platforms in addition to communication applications, also, e-universities are strongly present in all societies and compete with traditional universities. E-learning has achieved many new advantages and has become an easy way to exchange science and knowledge between different countries and cultures, and a true portal for people with special needs or who are difficult to enroll in traditional education in order to continue their studies. (Faith, 2017) (ALKHATIB & ALMOUQDAD, 2014)

E-learning also provides advantages that are not present in traditional education, such as the possibility of adapting the lesson to the needs of each student (ALKHATIB & ALMOUQDAD, 2014), saving time and cost significantly on all sides, and reducing the need for resources such as location. It also provides for students the possibility to repeat lectures more than once and to perform experimental tests and greatly facilitate their integration

with technology and modern means, thus staying at the same distance with knowledge and development in the world. E-learning also helps in providing excellent educational cadres and exchanging experiences between countries without the need for additional expenses or obstacles related to distances. (Rathod, 2019). Moreover, many traditional universities now consider that mixed education, which uses some means of e-learning, improves the level of education (Fryer & Bovee, 2018)(Mohamad & Abdul Rabu & Kamaruddin, 2018)(Foong & Mahmud, 2019).

On the other hand, many of the world's women are finding electronic education the way to a wider horizon, although some see it as an enhancement of the concept of women's imprisonment in some societies (Faith, 2017) but it remains the best solution in light of crises and conflicts such as the Syrian crisis.

The Internet of Things is one of the most recent concepts at the present time, the smart devices that associated with it have become spread all around us and have also contributed greatly to changing many of our concepts and our work with services in various fields such as business, health, transportation and also education, it has facilitated the path of e-learning and created a further level of education such as virtual education, which is a merger between e-learning and physical. It also provided millions of applications and smart services that facilitated our daily tasks such as location-based services, and adaptive smart tools in our homes that made the machine smart with memory and the ability to process data and exchange it with other purposes, whether machinery or people (Sen & Eassa & Jambi & Yamin, 2018)(Sen & Yamin, 2018)(Sen & Eassa & Jambi, 2017).

RFID and WSNs make more than 70% of the IoT environment, identifiers are used to give an identity for any entity and enable it to be tracked via a special reader while network sensors provide continuous information about the surrounding environment like pressure, heat, pollution, and other factors. Depending on these technologies, a lot of smart applications can be developed that can solve many of the problems we face (Yamin & Alsaawy & Alkhodre & Sen & Ahmed, 2019) (Yamin & Basahel & Abi Sen, 2018).

This research in its proposed model will focus on all previous concepts and techniques in order to find an effective solution to the problem of education for Syrian women and children in light of the ongoing conflict until now.

PROPOSED MODEL

This research proposes a model for a smart school based on two basic components (See Fig.1) to solve the problems and difficulties that children and women can face in the field of education. The focus was on the following main problems:

- Concern and fear among parents about children and women as they go to school because of the difficulties or risks they may face due to the lack of security
- Difficulty reaching schools or universities in some circumstances
- Difficulty integrating into the schools of other countries due to language, dialect, social environment or costs

To solve the first problem, a special tracking system was proposed that relies on IoT, specifically on RFID and LBS technology. The system proposes to prepare transport buses for school students so that the system manager distributes students according to their home locations on the buses and a specific path is specified for each bus.

Each bus gate is equipped with an RFID Reader that reads the student number when riding or getting off the bus with a bracelet that the student wears or a special pendant that is

attached to their bag. The data will be updated in real time in a central database. Parents on the other side, and through an application on their smart phones, they can track the location of the bus on the map and get immediate alerts when their children ride or get off the bus, or when they enter or leave school (where the school entrance will also be equipped with a reader).

To solve the second problem, which is the inability to attend school or the lack of schools for Syrians in the camps, and the difficulty for Syrian students to enter the schools of the host countries sometimes, this research suggests applying the concept of e-learning based on the cloud. Thus, the virtual school system will enable children or women to attend interactive or recorded lessons electronically, as the entire lectures will be downloaded on a special and easy-to-use platform through which they can re-attend the lectures and receive or deliver assignments, in addition to the possibility of conducting their own electronic tests.

Figure.1 shows the basic structure of the proposed system and the basic units within it. While the Figure.2 depicts a deployment view.

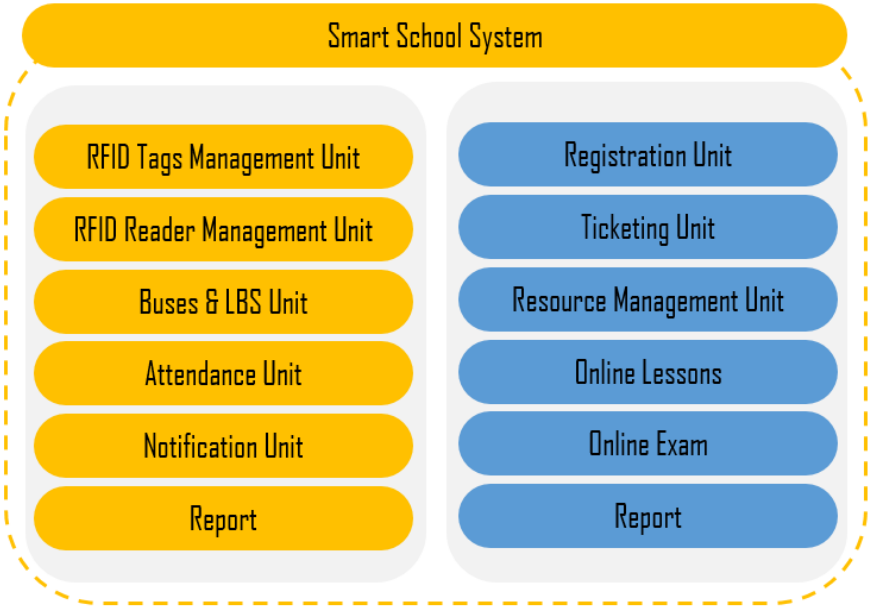

Figure 1:

Proposed Model of Smart School

Consequently, the proposed system across its core units will achieve the following benefits

- **Providing a mechanism for parents to enable them to track their sons and daughters, moment by moment, when they go and return from schools, thereby reducing the level of anxiety and fear they have, which prompted many of them to deprive their children of going to school as we mentioned earlier.**
- **Find a mechanism for safe transportation of students from home to school and vice versa without the need to wait outside the home or move alone, which may pose a risk in some unsafe environments.**
- **The cost of using the RFID is very low and any school can implement it, since the tag-RFID price is less than half a dollar.**
- **Enabling the school administration to automatically limit the attendees and absentees with a single click of a button and thus alert the parents immediately in**

the event of the absence of one of the children to make sure they know about it. Thus, saving costs, effort and time, increasing the effectiveness of the monitoring and tracking process in difficult circumstances, and increasing the effectiveness of the academic process.

- **Record and re-publish all lectures to enable the absentees to complete their education completely**
- **Providing a lot of educational and guidance resources through the platform**
- **Enabling students to submit their homework electronically and also conducting tests electronically**
- **Activating electronic discussion sessions with teachers to improve the level of interaction between teachers and students**
- **Enabling expert teachers in e-learning and in special circumstances to participate easily from anywhere in the world by providing the platform with registered lectures**
- **Providing a simplified education system on the platform for parents**
- **Providing a ticketing system for requests and communication between parents and management.**
- **The ability of the system to support huge numbers of students abroad without costs**
- **Enabling children abroad to continue studying under the supervision of Syrian cadres, thus bypassing language and integration barriers in the first periods of immigration.**
- **Providing jobs for Syrian teachers who were pushed by the circumstances to move to different parts of the world**
- **Finding a simple solution for women to pursue their educational achievement within families who have a limited view on the concept of women's education**
- **The ability to easily integrate with the initiatives of using digital games in education within the platform**

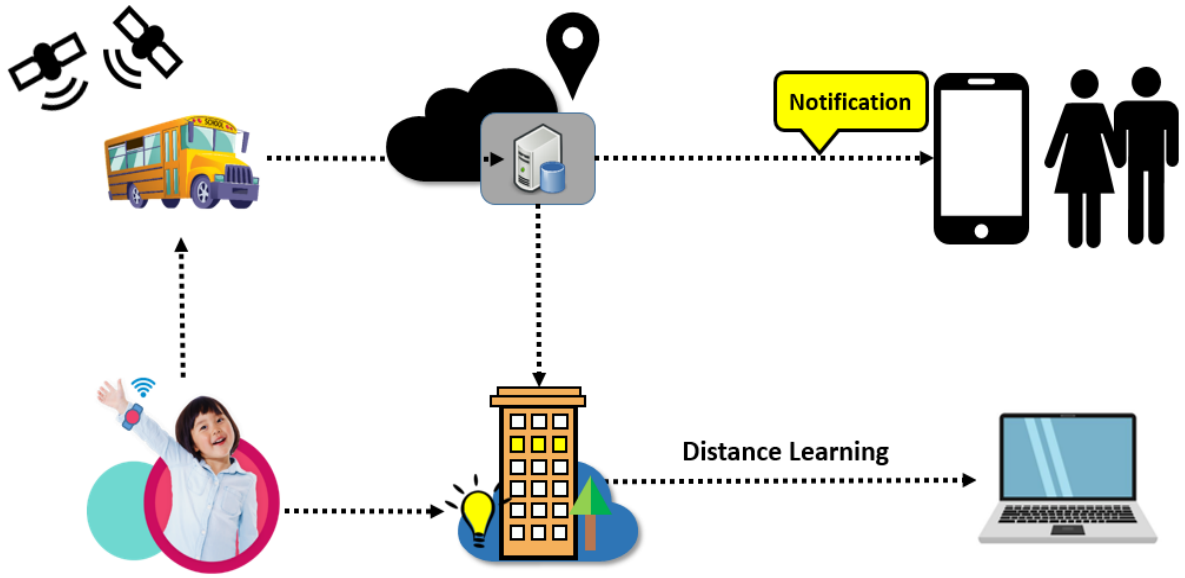

Figure 2:

Deployment Architecture for Proposed System

Sub-goals can be achieved

- **Use the platform to raise awareness for families about the importance of educating women and children and on issues of overcoming difficulties in times of crisis**
- **The smart bracelet can be employed in many accompanying applications such as ordering a meal or monitoring health and other important functions.**
- **Using buses greatly reduces congestion during rush hours.**
- **Prepare immediate reports on attendance and absenteeism ratios, and the percentages of learners in both sexes, and provide the relevant authorities with them.**

CONCLUSION AND FUTURE ISSUES

This research provides a core idea of building smart schools to improve the education level of children and women in Syria, where the proposed model contains two sub-systems. The first works to improve services within the school itself and employ IoT tools to increase the level of safety and security of children and women during their going and return from school in unstable environments, through a unified transport system with automatic tracking of the student's whereabouts and real-time alerts to the parents of their arrival and departure times, entry and exit, in addition to attendance and absence reports. On the other hand, in cases where it is difficult for the student to actually attend the school, the system proposes to apply a unified electronic structure for online education for the Syrian curricula within the places where there are no schools or where Syrian students are difficult to integrate.

The research recommends working on adopting this idea by local or international parties, knowing that in the future stage the work will increase the level of confidence in the certificates given by the proposed system by including a special blockchain unit in order to control the results of tests and certification processes for those who are entitled to them and to establish international control over them. It will also work to create virtual schools that rely on virtual reality tools to improve the quality of online education and thus enhance confidence in it in order to preserve the right to education for both children and women in places of conflict.

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BIODATA and CONTACT ADDRESSES of the AUTHOR

MRS. NOUR MAHMOUD BAHBOUH is a lecture at the Islamic University, Cipher Security Diploma. Nour Mahmoud Bahbouh was completed undergraduate studies at the, Al-Baath Univirsity Faculty of Information Technology Engineering, Homs, Syria in 2010. With completing the study at SVU she got the master degree of Web Sciences. The interest of the author are text-mining, privacy, IoT applications, and education issue.

Nour Mahmoud Bahbouh (Master Degree)
Lecturer of Information Technology
Islamic University, Madinah, Saudi Arabia.
Mobile: 0536502507
Nour_ita1987@hotmail.com