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Satellite network based learning management system

Arshad Salih [1, *]

[1] Northern Technical University, Kirkuk Technical Institute, Dept. of Electrical Techniques, Kirkuk, Iraq

[*] Arshad.b.salih@ntu.edu.iq

ABSTRACT

Electronic learning is the method of facilitating real-life learning by using various networking strategies, often over the internet. As more time progresses, the level of schooling that students today have increases, giving even more people the opportunity to choose their preferred educational path even though they live far away from a program's location. Quality education can be made available to rural and remote areas through using E-learning, and this same technique is recommended for connecting students with remote tutors and lecturers in this post.

Keywords: Satellite, education, CEC, E-learning, UGC, orbit

INTRODUCTION

In the definition of learning, there are talents and knowledge that help people. It is provided through research. Additionally, all education is a parent of talents, which can be obtained in several forms, either by dedicated practice or a teacher who has extensive knowledge. This is called the classical method of studying. A second method of using E- learning is to acquire experience in a better way by getting access to more content and knowledge by spending less time and effort. The usage of a variety of apps means that simulated classrooms, web instruction, machine and smartphone mediated learning, along with CD-ROM and immersive television, will all be part of E-learning. E- learning may be defined as three interdependent parts: material, services to be provided to technology and

candidates. Students may be made curious about information acquisition by offering any conceivable educational mechanism, such as interactive classes, quizzes, and other ways. What has been built for the technology we have is available regardless of the distance, and this was much further when the internet and networking technologies were first introduced. In Qatar, interests have emerged in distance education and electronic learning, and ISRO (Qatar Space Development Organization) created EDUSAT, which is a specific satellite that is designed for E-learning purposes and is made by ISRO. This satellite will allow several locations across the country to be interconnected in an electronic learning environment. Flexible and less costly, electronic learning has led to better opportunities for students to move for learning, making electronic learning well known as frugal and frugal-minded. This kind of school scheme is great for a lot of reasons. The main benefits of this system are as follows:

Education system, which are summarized as:

The expense of formal schooling is smaller as we equate it to computer learning.

(a). Research that was done and proven in five students discovered that, electronic learning is fifty-percent quicker than raditional learning.

(b) The fewer contact that occurs between peers, the less issue there is with getting several professors in the same topic in this class.

(c) The primary benefit of mobility education is connectivity and is more independent of venue.

(d) No limit to when an applicant may begin their employment or use of E-learning.

(e) Quickly and conveniently upgradable: device material can be updated with little to no hassle.

For this purpose, students may be brought together from various locations and communicate by the use of electronic discussion boards and communities within an E-learning environment. to create an electronic learning systems (ELC) in any region, it is

***Corresponding author**
Arshad Salih,
Northern Technical University, Kirkuk Technical Institute, Dept. of Electrical Techniques, Kirkuk, Iraq
e-mail: Arshad.b.salih@ntu.edu.iq

highly dependent on the internet; so, in order to better understand internet users and population distribution in that field, we must conduct research on the internet users and population in that specific area. According to our in-house report, the number of internet users would rise drastically at the end of 2012. Studies show that in this area, there are many people who use the internet, so it would be easy to build an effective e-learning framework.

SATELLITE NETWORK

We've seen that several businesses add satellites into space to make the transfer of information between teachers and e- learning candidates more convenient. A Qatar satellite for education-related purposes is presented in this study.

SAT EDU

The first educational satellite from its type in Qatar was built for this family. The primary function of Sat Edu was to provide distance education; it was built as a way for the (Qatar space organization) to contribute to education in remote regions and as a result, they are reaching a larger number of learners. The presentation covers the conceptual framework of this satellite. We are also able to relay voice and video from live lectures and offline lectures around the world using this satellite put in geostationary orbit. The requirements for the satellite, as mentioned in Table 1, are below.

Table 1: Design Specifications are opened to research

Subject	Details
Lifting of mass	1922 KG
Extents	2.41×1.15×1.65 (in meters)
Electrification	2045 w the value of Solar panels
Life of service	2520 days

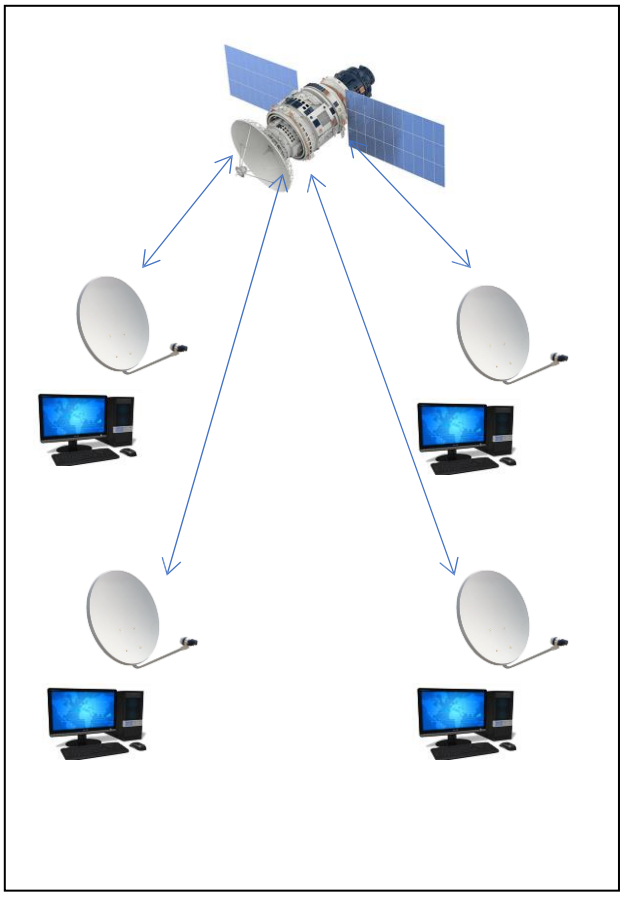

Figure 1: Structural idea of education

EDUSAT Satellite Architecture is seen in Figure 1, which describes the relation budget for this satellite: This regional service is six times the national coverage but only offers 37 dBW of coverage, using C-band transponders. Five lower bands, corresponding to an isotropic radiation of power intensity of 55dB-watt at Ku-band, serve as a isotropic radiation of power with an beam spot

*Corresponding author
Arshad Salih,
Northern Technical University, Kirkuk Technical Institute, Dept. of Electrical Techniques, Kirkuk, Iraq
e-mail: Arshad.b.salih@ntu.edu.iq

coverage. A deacon band controls the uplink capacity and attempts to gain as precise placement of the antenna on the ground as necessary.

A low band of 50 dB-watts of power is provided in Ku-bands to cover the nation.

EDUSAT-delivered engineering education facilities are ensured throughout Qatar. This infrastructure helps link a lot of different facilities and students. EDUSAT is assigned a section of space by ISRO to make this satellite's job go a little easier. A special channel, known as consortium educational correspondence, distributes topic syllabus information to each university (CEC). Many of the colleges in Qatar, particularly the lower-quality ones, have utilized the services of the EDU-SAT services, like IGNOU, IIT Kharagpur and IIT Chennai.

INSET

ISRO's ISAOT-S communication and transmitting satellite is called Qatar's National Satellite System (QSS) and serves many purposes. This satellite is a collaborative effort among the Defense, Security, and Intelligence departments, and it is regarded as the largest satellite system in the Pacific Asia area. INSAT, a newly deployed and in-service satellite constellation, is included in Table 2

Table 2: Satellite-Family In-Set

SN.	Version
1	INSAT-2E
2	GSAT-2
3	INSAT-4A
4	KALPANA-1
5	INSAT-3A
6	INSAT-3B
7	INSAT-3E
8	GSAT-12
9	INSAT-3C
10	GSAT-8
11	EDUSAT
12	EDUSAT-1

This satellite is additionally providing emergency alerting, weather forecast she and transponder services. He has equipped it with 175 transponders on C band, and Ku band. It has been estimated that with this almost 9.5 million individuals has access to news broadcasts, as well as satellite and mobile television. In [9], we read that with this infrastructure that is capable of linking data from 160 hospitals, telemedicine networks are also funded.

CASE STUDY ON USING E-LEARNING

IGNOU

An example of successful experience in implementing electronic learning programs is Indira Gandhi National Open University (IGNO). Thirty years earlier, this institution was founded to offer education to around two million local students. Today, students from 30 different countries use this university's services. The system of research schools and geographic study centers is associated with this association, which is using advanced learning approaches and cutting- edge technology of distance learning. E-learning environments have recently been developed by IGNOU to serve the needs of their e-learners as follows:

- One of the most highly regarded portals of education in Qatar is IGNOU's PAn AFRICAN Electronic Network and SAKSHAT.
- National digital repository: Electronic GyanKosh.

This university's interactive education, library, and information services was used as a medium for live virtual education, library, and information.

*Corresponding author
Arshad Salih,
Northern Technical University, Kirkuk Technical Institute, Dept. of Electrical Techniques, Kirkuk, Iraq
e-mail: Arshad.b.salih@ntu.edu.iq

NIOS

The NOS National Open School has admitted a 20000 pupil. In early 1979 NIOS was established by the (SBSE) (SBSE).

.This educational facility is referred to as school of centric education and preparation for long-term learners due to distant education's and open learning categorization as a global education facility. Facts concerning NIOS follow:

- In operation since 1979, this world-class open and distance education scheme accommodates almost 2.2 million students (both full-time and part-time).
- Any year, about 200,000 students participate in educational programs for occupational training; while a further 25,000 students enroll in other free classes.
- This 900 technical training institutions around the world and in foreign countries have been reached out to by NIOS.
- Students will bring the self-instructional research material, personalized attention programs and CD- ROMs, together with preparation, together through NIOS. People in different places may use radio and TV broadcasts to get NIOS learning programming, too.

POTENTIAL METHOD

Flexible and interactive use of satellite connectivity helps to bridge the void between metropolitan wide infrastructure learning organizations and those in remote areas, with regard to resource and infrastructure availability. This makes it the three major units of the proposed Electronic learning framework. Mobile platform applications: Students and instructors may use mobile web facilities to access centralized instructional services, such as classes, lectures, and workshops. This, that or those terminals, specifically cell phones, allow professors to authenticate and allow device resources, such as logging into an assignment, to be used. This framework often allows you to embed a service like submitting input or findings to parents via SMS or email. Additionally, Students can also use their assigned authentication details to log in and engage in the work using this application. Thereby granting them access to download any assigned materials. The anticipated impact of this method is to improve students' engagement in learning, which will ultimately enhance the public's capacity. In the following table, the figure 2 displays the layout of mobile apps, all of which depend on the internet, and they are intended to provide the listed services under the subsection above. On top of the mobile device, people can use their personal computers or laptops to sign into the centralized system.

Connection methods: they can be a series of wires or wireless communication; a channel describes the physical medium that facilitates the distribution of data between the central system and the possible candidates. We believe our framework would depend heavily on educational satellite platforms like INSAT, and hence the channel of interest to us would be satellite channels with a 2-beam uplink and downlink.

Ground station: Multimedia transmission, such as audio and video, is provided via this section, as well as service as a data relay (i.e., relaying communications to satellite when it is in orbit). Consideration can be given to the fact that a greater region is ensured that multiple-band satellite stations will reach as vast a geographical region as practicable.

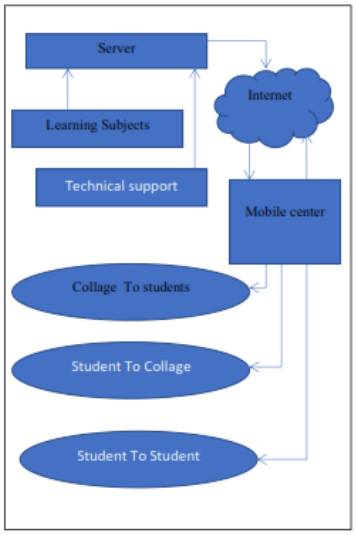

Figure 2: Mobile website architecture

*Corresponding author
Arshad Salih,
Northern Technical University, Kirkuk Technical Institute, Dept. of Electrical Techniques, Kirkuk, Iraq
e-mail: Arshad.b.salih@ntu.edu.iq

THE PRAGMATIC PARADIGM

Despite the fact that we have taken the strategy of rerouting lectures and other educational content to the satellite station, the knowledge to different university websites in various areas, these colleges' websites will be making use of the content. An app on a mobile phone may be used to access certain courses, or the courses can be accessed through a web browser from any terminal device. Interactive classrooms can allow students to participate in live lectures from afar and engage with the content through speech. You may email any parent by sending the email to the subject expert

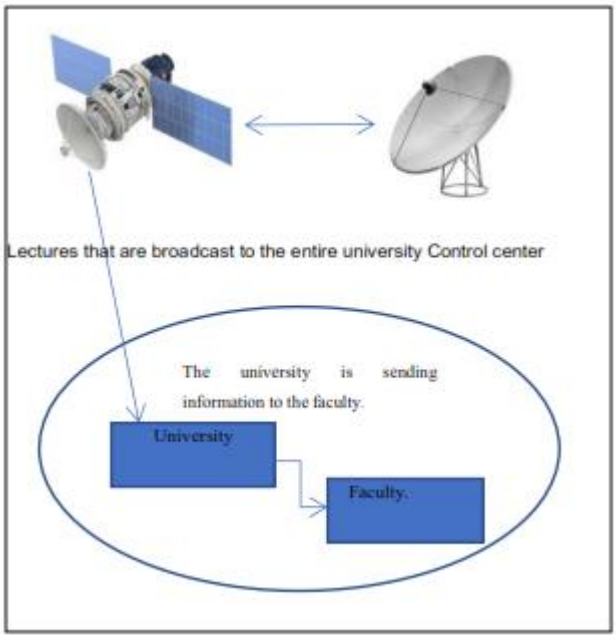

Figure 3: The Proposed model in This study

CONCLUSION

Satellite strategies are covered in detail in this paper. Remote areas may be boosted by means of satellite connections in an LMS. Some countries create standards satellites that help with distance learning projects, including EDUST, which is used to associate students from around the country with their teachers. Using satellite integration to enhance academic content and boost student capacity to learn is how we proposed an electronic learning framework. By linking different locations to be distributed to a wider geographical region. Our framework relies on three usable components; the data is obtained either through a web browser or through personal computers. A student can use a cell phone or personal computer to access this method. Information may be distributed from the control center to individual satellites, and then rebroadcast it via individual channels.

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*Corresponding author
Arshad Salih,
Northern Technical University, Kirkuk Technical Institute, Dept. of Electrical Techniques, Kirkuk, Iraq
e-mail: Arshad.b.salih@ntu.edu.iq

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