LOCATION AWARE ADAPTIVE ELEARNING MODEL

V.Vidhya
Professor, Department of Computer Science and Engineering
Sri Venkateswara College of Engineering, Sriperumbudur, India.

ABSTRACT
Extended Actuality (EA) development can be considered as on a very basic level involving two points of view: ID of certifiable dissent and show of PC delivered propelled substance related the recognized genuine question. The particular trial of adaptable AR is to recognize this present reality address that PDA's camera goes for. In this paper, we will show a Location Aware question unmistakable verification figuring that has been used to recognize learning objects self modify Location Aware convenient learning setting. We will moreover give some establishment of the computation, look at issues in using the figuring, and present the count empowered flexible learning structure and its utilization.
Keywords: Extended Actuality, Object Identification, Location Aware adaptive eLearning

INTRODUCTION

Cell phones have turned out to be pervasive in today's learning. Presently with the development of new usefulness in cell phones, eLearning can be led in more inventive mold. From the instructive point of view, the upsides of eLearning couldn't be completely abused and shown if the eLearning is just led by utilizing the versatile program to get to learning substance without utilizing the local capacities and components of the cell phones. There are increasingly Location Aware portable applications from Location Aware data administrations to Location Aware amusements and after that Location Aware omnipresent learning. As of late, cell phones with inherent Global Positioning System (GPS) recipients and A-GPS administrations are turning out to be progressively mains tream. Using a cell phone's Location Awareness capacity inside eLearning applications has now turned into a reality. One of the rising exploration accentuations is to use the Location-Awareness usefulness of the cell phones to additionally fortify eLearning. Past research have likewise demonstrated that the blend of Location Awareness and a logical learning methodology can empower learners to better build significant contextualization of ideas.

Moreover, Location Aware e-learning gives a customized learning knowledge and aides in keeping the learners occupied with the learning exercises and upgrading their viability. For instance, as far as omnipresent learning applications, proposed a customized setting Aware universal learning framework with capacity to misuse fitting setting in view of learners' Location, relaxation learning time, and individual capacities to adjust learning substance towards learners for advancing the learning premiums and execution. Situational learning approach for dialect learning showed that setting is a critical considers the learning procedure and it can improve learners' learning premium and learning viability. These cases recommend that significant information is developed principally when the learning procedure incorporates with social culture and life-setting.

Expanded Reality (ER) has turned into a well known show and intelligent strategy in the previous couple of years. It can be characterized, as a system is to show virtual substance superimposed upon genuine items. Then again, the Location Aware Self-alter eLearning is to give Self-change learning substance to specific learner as per the learner's Location where the genuine - life setting is utilized as learning items. To utilize cell phones to communicate with genuine learning object in a setting Awareness eLearning condition, Mobile Enlarged Reality (MAR) is presented. The original of MAR utilizing setting Awareness depended on portable workstations and for the most part utilized Location data as a unique circumstance. At that point the vast majority of the inquires about were centered around utilizing a space information and conduct model to enhance associations in MAR.

Omnipresent learning offered through the Mobile Enlarged Reality Systems (MARS) requires all around built framework/programming engineering keeping in mind the end goal to convey on-request instructional administrations. Target applications created from the design require instructional capacities for comprehension singular learning qualities while fitting experimentally assessed academic systems to upgrade learning execution. With a specific end goal to essentially affect taking in, a MARS e-learning apparatus needs to reliably quantify learning progress and persistently redesign data about the learner for the term of the learning connection. Subsequently, a MARS e-learning device may consistently handle learning information related to a given setting for a given learner.

In this exploration, Enlarged Reality is considered as a rising substance show method that can enhance and upgrade learning content introduction and additionally communication amongst learners and learning substance

related with Location Aware genuine learning objects (RLO). To apply AR method for the taking in, the significant specialized test is to recognize genuine items (the substances). With a specific end goal to handle the specialized issue, this paper introduces a Location Aware Object Identification Algorithm that we proposed and have executed in an eLearning application. The calculation means to recognize the genuine learning objects by coordinating the labeled Location data of the RLOs with the present Location and introduction of the cell phone. Besides, the calculation additionally gives the direction capacity to explore learner to the privilege RLO among the adjacent RLOs for learning. A genuine learning article is a genuine protest utilized as a Location Aware learning object in the Location Aware eLearning setting.

A Location Aware Self-change eLearning application, called Multi-Object Identification Enlarged Reality (MOIAR) has been created to apply AR strategy into eLearning application. It is engaged by the Location Aware Object Identification Algorithm to recognize the genuine learning objects in the eLearning setting. The execution of the eLearning application has demonstrated the ease of use and the common sense of the Location Aware Object Identification Algorithm, to enhance the learning content versatility, the MOIAR likewise uses the 5R Self-alter system, which gives Self-modify learning substance as well as helps genuine learning object recognizable proof. The 5R adjustment idea for Location Aware eLearning is expressed as: at the perfect time, in the correct Location, through the correct gadget, giving the correct substance to the correct learner.

In this paper, we will survey the related work taking after by this segment. At that point in segment 3 we will display the Location - based Object Identification Algorithm in detail. In segment 4, we will give a Location Aware eLearning situation contemplate where the MOIAR application is utilized at the Legislative Assembly of Alberta as a genuine learning item to show convenience and viability of the calculation. At last this paper will be finished up with discourse of future works.

Related Work

In Enlarged Reality, markers are regularly utilized as a part of nature because of their low setting up cost and vigor. In any case, it is an obtrusive arrangement since items must be labeled with these codes. Then again, developing following frameworks offer different approaches to distinguish protests in this present reality. They go from the notable Global Positioning System (GPS) to GSM, GPRS and UMTS frameworks, which empower distinguishing proof and Location of cell phones inside a range of impact. Radio recurrence ID frameworks (RFID) empower non-contact perusing of transponders furnished with an overall remarkable ID number. The rising remote sensors arrange (WSN) frameworks empower the following of cell phones that are associated with the system through a remote system card.

There are many situating approaches (GPS, WLAN, GSM, transponders, indoor situating frameworks, and so forth.) and introduction recognizable proof techniques (computerized compass, accelerometer, gyros, and so on.). They give a wide range of following data and bolster diverse Location recognizable proof frameworks. For example, a dynamic detecting framework can decide its present position or potentially introduction without anyone else. Worked in A-GPS recipient and advanced compass on a cell phone empower the cell phone to have the capacity to identify its present position and heading.

Extended Actuality (SA) can join advanced media/data and increase the physical world. This capacity to intertwine advanced media inside the physical world offers path to the potential for SA realizing which makes the perfect conditions for locative, logical and circumstance based learning situations. Earlier research has reasoned that the consolidation of different sensors gives new routes in which we can collaborate with our general surroundings. Moreover, the instruments (programming) and advances (equipment) are all the more equitably circulated and are available to us to send blended reality learning situations that convey rich and immersive AR content which could possibly re-shape how people and gatherings approach learning and training.

Lion's share of the earlier research about applying SA into instruction has shown that the natural association of AR has enormously enhanced learning productivity, inspiration, and general execution. Proposed novel amusement based English learning framework with setting Aware intuitive learning component which can suitably give a relating diversion based English learning scene to the learner's handheld gadget in light of the learner's Location setting. The proposed framework means to build a blended reality amusement learning condition that coordinates virtual items with genuine scenes in a college library. The preparatory exploratory outcomes uncover that the proposed learning mode gives likely advantages as far as advancing learners' learning advantages, expanding learners' eager to learning English. An examination built a learning framework called HELLO (Handheld English Language Learning Organization). It comprised with 2D scanner tag and handheld AR that has 3D vivified virtual learning accomplice (VLP) over this present reality. The understudy can finish the setting Aware learning process by conversing with the VLP and to learn in the outlined diversion based

educational situation to enhance understudies' English level. Another exploration displayed a SA framework for offspring of the Summer School of the Technical University of Valencia for finding out about the inside of the human body. Likewise, they exhibited two SA intelligent narrating frameworks that utilization substantial solid shapes for indistinguishable understudies from specified above to learn with the 8 distinct finishes of the Lion King story. Proposed a bit of instructive programming that utilizations community SA on completely self-governing PDAs running the application which is laid out as a two player SA PC diversion, together with an optical marker-based following module to show learners the importance of kanji images. Built up a collective SA application, called Construct3D, particularly intended for science and geometry training. Construct3D depends on the versatile cooperative ER framework "Studierstube" inside the more noteworthy setting of immersive virtual learning situations.

LOCATION AWARE ENTITY DETECTION ALGORITHM

The MOIAR Overview

SA gives a magnificent learning interface in an eLearning application. The learner's view is broadened with computerized data at the right geographic Location, in this way giving a natural method for introducing such data. In this paper, the MOIAR application concentrates on distinguishing Location Aware open air genuine learning objects. The MOIAR intends to give the learning substance as well as permit learners to collaborate with the Real-life Learning Objects (RLO) in the least difficult and most natural way. The MOIAR can likewise give learning substance that are adjusted and customized to learners through SA show. In the MOIAR, a versatile SA customer application running on a cell phone that is outfitted with an inherent A-GPS and a computerized compass is utilized as the GPS beacon and the learning terminal. The cell phone can consistently track a learner's development without the requirement for outer references. Once in a while it might be helped with optional sensors, for example, movement sensors (accelerometers) and revolution sensors (gyrators). Assist, with the usage of SA and cell phone's Location Aware ness and portability, the MOIAR can possibly wipe out a portion of the learning impediments and drawbacks that exist in the conventional learning. Figure 1 demonstrates the MOIAR application framework engineering chart.

Location Aware Entity Detection Algorithm

In the MOIAR application, SA is utilized to show computerized learning substance identified with the genuine - life learning objects by superimposing upon the video stream of genuine - life question on the cell phone's screen. This implies the learner conveying the cell phone must be at a Location that is adjacent the genuine protest, and the learner needs to confront the cell phone's camera focal point towards the genuine question, so that the substance can be seen superimposed upon the genuine learning object on the screen. To show the correct learning substance on the genuine question, the MOIAR must have the capacity to recognize the genuine protest i.e. to discover which the Location Aware learning object put away in the database of the eLearning application coordinate with the genuine question; then the Self-change instrument will produce right learning substance superimposing on the protest.

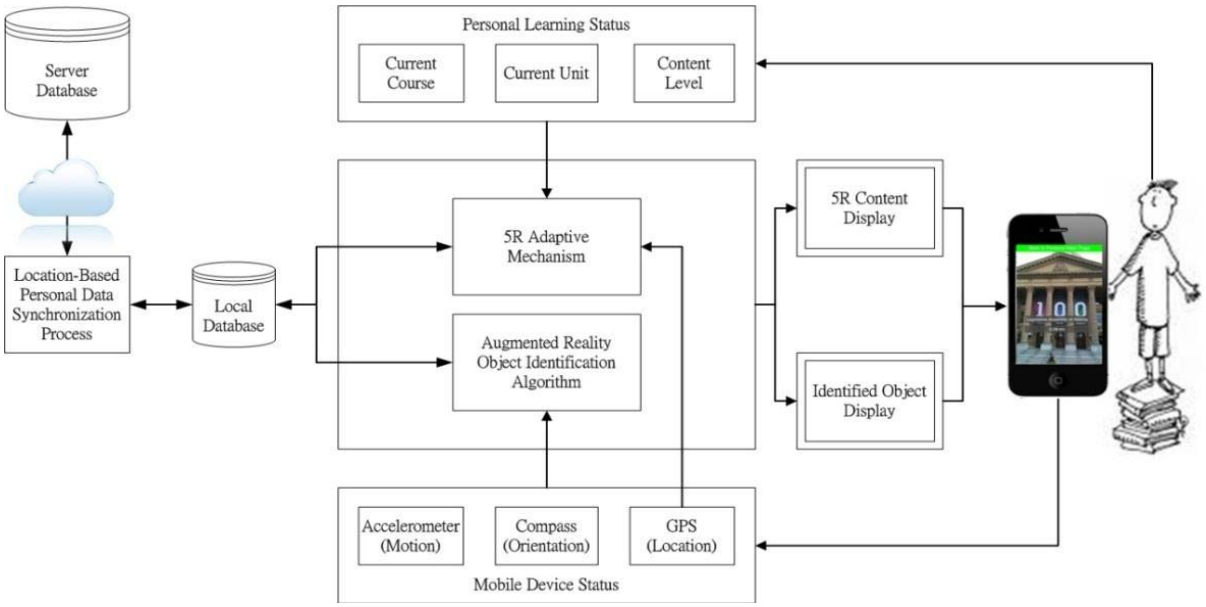


Figure 1: The MOIAR system architecture diagram

The idea behind the Location- based object identification algorithm for mobile Enlarged Reality is based on Location-Awareness of mobile devices and known geographic coordinates of Location Aware learning objects in the Location Aware eLearning environment. The MOIAR mobile application first obtains the current geographic coordinates of the mobile device acquired by the built-in A-GPS sensor. The MOIAR then uses the geographic orientation information to obtain the absolute orientation, which is detected by the built-in digital compass. On the other hand, each Location Aware learning object predefined and stored in the database has been tagged with its geographic coordinates. When the learner with the mobile device was approaching into a pre-configured distance toward a real -life learning object, the MOIAR application will find the object then calculates the relative distance and orientation between the mobile device and the real-life object, which is accomplished by the Location Aware object identification algorithm.

In fact, in the outdoor learning environment, the Locations of real-life objects used as Location Aware learning objects are known and fixed. When the learner carrying a mobile device is standing nearby a real-life object, it is easy and would make sense for the learner to change his/her current orientation to face the camera lens to the real-life object. Particularly when the object is located in an open space, which means there are no other objects close by or right next to it, the learner can walk around the object as long as he/she is close enough or nearby the object's Location, and has mobile device facing the object. Hence, the mobile device's orientation related to the real-life learning object becomes very important.

The Location Aware object identification algorithm utilizes the concept of the Relative Orientation that will be discussed later in this section. This algorithm also uses two-dimension geographic coordinate information, namely latitude and longitude, to calculate the distance between the learner and the real-life objects. The mobile device's digital compass can get the angle between the mobile camera face and the true north, and then the algorithm can calculate out the angle between mobile camera face and the real-life object. Both of the angles are then used to decide whether the identification tags and the Self-adjust learning contents should be displayed on the screen or not.

Distance between Mobile Device and Real-life Learning Object

In the MOIAR eLearning condition, there could be numerous genuine learning objects identified with the learner at a specific Location. With a specific end goal to adequately use the restricted screen space on the cell phone, and additionally to give the 5R Self-conform learning substance, just a specific number of genuine protest ID labels and substance ought to be shown at the place and time. In the MOIAR application, just protests that match the learner's close to home learning profile and status are incorporated into the ER information show as Objects of Interest, and the genuine question distinguishing proof labels of just those items might be shown on the screen at the correct Location. Truth be told, in the MOIAR learning condition, learner could be close-by and see a few genuine learning objects in various perspectives at one Location. Be that as it may, the learning substance are shown on the screen just for the genuine learning objects that the learner's cell phone's camera focal point is indicated inside the pre-designed separation run.

Subsequently, the relative protest recognizable proof calculation is intended to register the introduction subtended from the learner's present Location to every genuine learning object at the Location. The MOIAR uses two organize frameworks to actualize the calculation. The primary facilitate framework is the first geographic arrange frameworks, known as the Polar organize framework, which uses the scope, longitude, and the North Pole based introduction. In light of the Polar organize framework, every genuine taking in question's Location is shown as (φo, λo) as a known parameter, which is predefined and put away in the RLO information demonstrate. The learner's present Location is shown as (φm, λm) as a sensor parameter. The subscript "o" and "m" speak to separately genuine learning object and the cell phone (i.e. alludes to the learner's present Location). Firstly the calculation is to figure the separation, D from the learner's present Location to every genuine learning object. The computation depends on the Spherical Law of Cosines is appeared in equation (1):

$$D = R * \arccos [\sin\varphi m * \sin\varphi o + \cos\varphi m * \cos\varphi o * \cos(\lambda o - \lambda m)] \quad (1)$$

The φo and φm show their scopes of the learner and the genuine learning object, the φm and φo demonstrate their longitudes, and the R is the range of the earth in meter. In the equation, R is a steady, R=6.371 X 106 meters. The geographic directions of the learner are obtained from the GPS recipient of the cell phone, and genuine taking in protest's geographic directions are put away in the database of the MOIAR application framework. The scope and longitude arranges must be changed over into Radian if their unit of measure is in degree. In light of the distinction of the separations from the genuine learning item to the learner, the genuine articles are sifted through on the off chance that they are not inside a pre-arranged separation go from the learner's present Location.

3.2.2 Direction between Mobile Device and Real-life Learning Object

The orientation of the mobile device defines the angle between the mobile device camera lens and the real-life learning object, which is one of calculation criteria for the content display. For example, the learner might be standing on the different side of the real-life learning object, which would require the learner to turn the camera lens to a different direction in order to get the right content to be displayed on the screen properly. As mentioned above, the mobile device's current Azimuth, each real-life leaning object's Azimuth, and the angle subtended between the two Azimuths, are the critical elements to accomplish this algorithm. The mobile device's current Azimuth is indicated as θm, which is also a sensor parameter and is measured in Radian, discussed in the later paragraph. Another coordinate system is the MOIAR coordinate system that based on the Cartesian coordinates, which computes the Azimuth of the each real-life learning object that is subtended to the learner's current Location and the North Pole. In the MOIAR coordinate system, the learner's current Location is indicated as the coordinate origin.

The MOIAR coordinate system contains two key variables, ϕ and λ. They respectively indicate the computed west to east axis and north to south axis variables that are subtended from the learner's current Location to each real-life learning object at the Location. The formula (2) for calculating the [Δϕ, Δλ] is shown as follows:

$$\Delta\varphi = \varphi o - \varphi m \qquad (2.1)$$

$$\Delta\lambda = \lambda o - \lambda m \qquad (2.2)$$

After [δ ϕ, Δλ] is figured, which demonstrates the new arrange variable between the genuine learning object and the learner's present Location, the Polar organize framework is then thoughtfully changed over into the MOIAR facilitate framework, which uses the learner's present Location as the facilitate source. As specified above, keeping in mind the end goal to recognize the correct genuine protest and show the correct substance when the learner is confronting the cell phone on the correct introduction to every genuine learning object, and to further guide the learner in regards to which bearing to confront the camera focal point, the Azimuth of the learner's present introduction and the Azimuth of every genuine learning article is processed. The idea of the Azimuth in the MOIAR facilitate framework is appeared in figure 2 and the registering equation to additionally figure the Azimuth θc is exhibited as takes after:

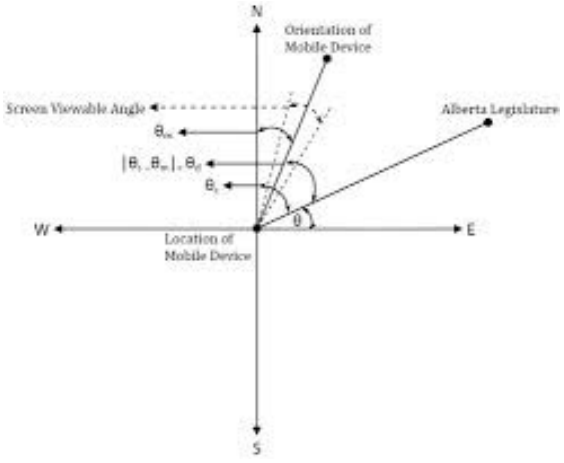


Figure 2: The concept of the MOIAR coordinate system in the algorithm

$$\tan\theta = Yc / Xc \qquad (3.1)$$

$$\theta = \tan^{-1} Yc / Xc \qquad (3.2)$$

$$\theta c = 90^{o} \text{ or } 270^{o} \pm \theta \qquad (3.3)$$

In the MOIAR arrange framework, the edge between the line from the facilitate cause toward the North Pole and the line from the organize birthplace to [δϕ, Δλ] alludes to the Azimuth of genuine learning object spoke to as θc. Keeping in mind the end goal to register θc, the edge θ between the learners, the genuine - life learning object, and the ϕ pivot must be figured first by utilizing the Tangent Trigonometric Functions. Further, as indicated by [δϕ, Δλ] that finds the quadrant in the MOIAR organize framework, the entire Azimuth θc will be found. At the point when ϕ is sure and Δλ is sure, it implies the genuine learning article is situated in the main quadrant and θc will be 90° + θ. At the point when ϕ is certain and Δλ is negative, it implies the genuine learning article is situated in the fourth quadrant and θc will be 90° - θ. At the point when ϕ is negative and Δλ is

negative, it implies the genuine learning article is situated in the third quadrant and θc will be 270° - θ. At the point when ϕ is negative and Δλ is certain, it implies the genuine learning item is situated in the second quadrant and θc will be 270° + θ. Table 1 shows diverse situations when Azimuth θc is situated in every quadrant.

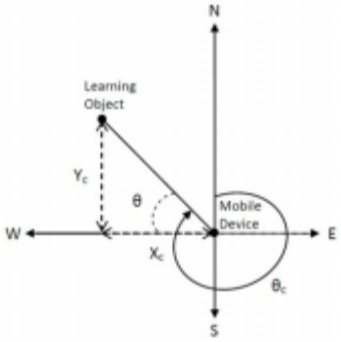
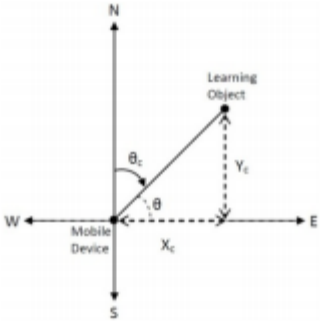
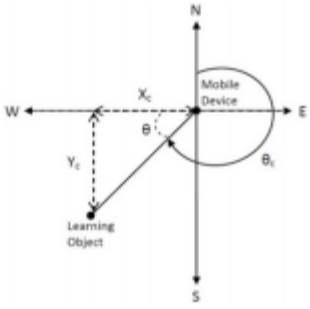
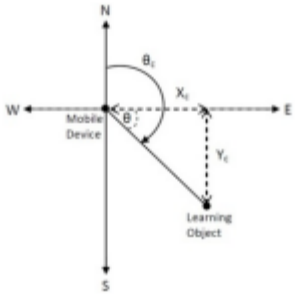
The Object Identification calculation proposed and actualized in this paper is for the MOIAR application to viably recognize the genuine learning objects in light of the computed Azimuth and the subtended edge, whatever the learners' present Location and introduction are, and at whatever point learners transform them. Not at all like earlier SA learning applications that oblige learners to remain inside a specific separation from the question or center the camera focal point before the optical marker, the MOIAR application gives the learners a chance to stroll around the genuine learning article and still observe the recognizable proof labels and the Self-change learning substance, the length of the camera focal point is confronting the genuine learning objects. Advance, the MOIAR can likewise manage the learner to other genuine - life learning objects situated with the question recognizable proof labels. Likewise, the Self-modify component custom-made the learning substance as per the learner's learning status and the cell phone's present Location status. Looking at the MOIAR approach created in this exploration with earlier portable SA learning research applications, the majority of the earlier applications can just give learning substance in light of the reading material or customized to the protest itself. The MOIAR framework can distinguish the objects of enthusiasm as well as gives the substance of intrigue. The Self-conform component helps the learners in developing more important information in light of the fact that the learning procedure and learning substance are coordinated with societal culture, life-setting, and individual learning inclinations.

When Azimuth θc is figured, the last stride is to register the subtended point. The subtended point is figured by the distinction between Azimuth of the learner's present introduction, which is detected by the implicit computerized compass on the cell phone, and the Azimuth of every genuine learning object θc . Advance, the question recognizable proof calculation can figure out if the protest ID labels and the Self-alter substance of the question ought to be shown on the screen or not, as per the equation (4) underneath:

$$\theta d = |\theta m - \theta c| \leq R \text{ (ex: } R = 5^{o}) \qquad (4)$$

In the equation (4), θd alludes to the edge contrast between the Azimuth of the learner's present Location and every genuine learning object. Variable R alludes to the Rule in the calculation that is utilized to decide the mistake band for showing the question distinguishing proof labels and the Self-alter substance. The motivation to register θd as a flat out esteem is that the MOIAR framework ought to show the question distinguishing proof labels and the Self-change substance regardless of whether the genuine learning article is on the left side or right half of the learner. For instance, if θm is 45° and θc is 40°, the first θd is +5o, which implies the question, is marginally left to the learner.

Table 1. Azimuths in different quadrants of the algorithm

Mobile Device Coordinate		Mobile Device Coordinate	
-	+	+	+
RLO Coordinate		RLO Coordinate	
North West: Second Quadrant  $\theta_c = 270° + \theta$		North Ease: First Quadrant  $\theta_c = 90° - \theta$	
Mobile Device Coordinate		Mobile Device Coordinate	
-	-	+	-
RLO Coordinate		RLO Coordinate	
South West: Third Quadrant  $\theta_c = 270° - \theta$		South East: Fourth Quadrant  $\theta_c = 90° + \theta$	

Then again, when θm is 45° and θc is 50°, the first θd is - 5o, which implies the protest is somewhat on the correct side of the learner. On the off chance that we set the govern as 5°, subsequent to figuring θd with a flat out esteem, the protest distinguishing proof labels and the Self-conform substance would be shown in both cases.

THE MOIAR IMPLEMENTATION

This section describes how the MOIAR works in the research environment created for the purpose of demonstration through a scenario study. There are three students in this scenario. Will is currently enrolled in the English program, and he is taking course 604 “Traveling English” and he is on unit one with knowledge level one. Jimmy is currently enrolled in the Politic program, and he is taking course 704 “Politic Science” and he is on unit one with knowledge level one. Alex is currently enrolled in the Architecture program, and he is taking course 804 “Introduction to Architecture” and he is on unit one with knowledge level one. The real-life learning object is the Alberta Legislature building.

Learner Validation Interface

The learner confirmation interface contains two sections of data, the individual learning profile and status and the learner's present Location. The screen shots are appeared in figure 3. The MOIAR versatile customer application shows to the learners the courses and units that they are right now learning with the MOIAR application, the learning level of the learning substance that they will get, and their cell phones present GPS Location data.

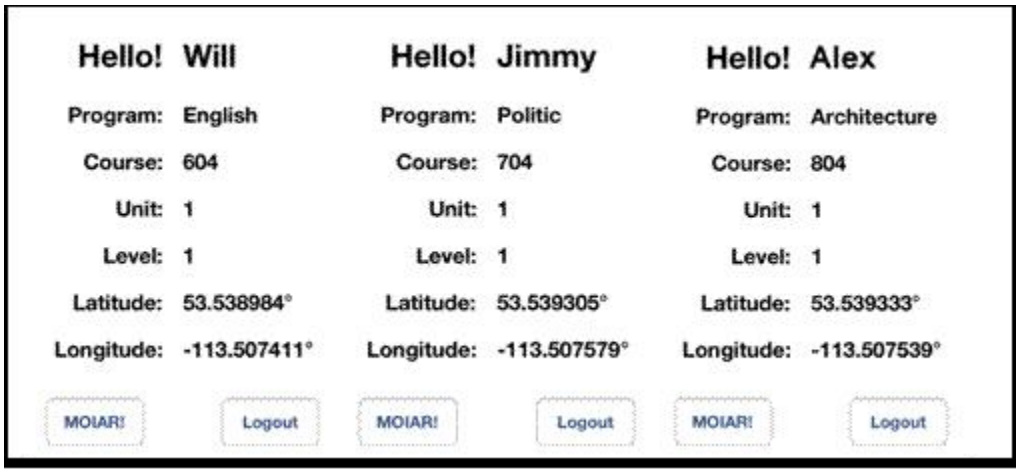


Figure 3. Individual learning profile and status

Location Aware Reality Learning Object Identification

At the point when the learner taps the MOIAR catch, the application will dispatch the question distinguishing proof process controlled by the Location Aware Object Identification Algorithm to begin recognizing the genuine - life learning object around the learner's present Location and show ID labels of the Location Aware learning objects as appeared in figure 4.

The screenshot (4 - A) demonstrates that the MOIAR application effectively recognized one of the genuine learning objects, the Alberta Legislature Building, with the question's name and the separation showed upon the screen. The screenshots (4 - B) and (4 - C) show diverse distinguishing proof labels at a similar Location as indicated by their introductions and movements. In screenshot (4 - B), the learner was remaining before a house that is situated at the address 2422 111B Street, where the house was 0.02 km far from the learner. At the point when the learner confronted to the house appropriate by it, the label demonstrates the neighbor house's address, the separation from the learner is currently appeared as 0.03 km (screenshot 4 - C). The houses are predefined and put away as a genuine learning object in the database. Facilitate, when there are more than one protest in the camera see, the MOIAR versatile application will change the measure of the question recognizable proof labels as per the separation; the nearer the question is to the learner, the greater the tag will be.

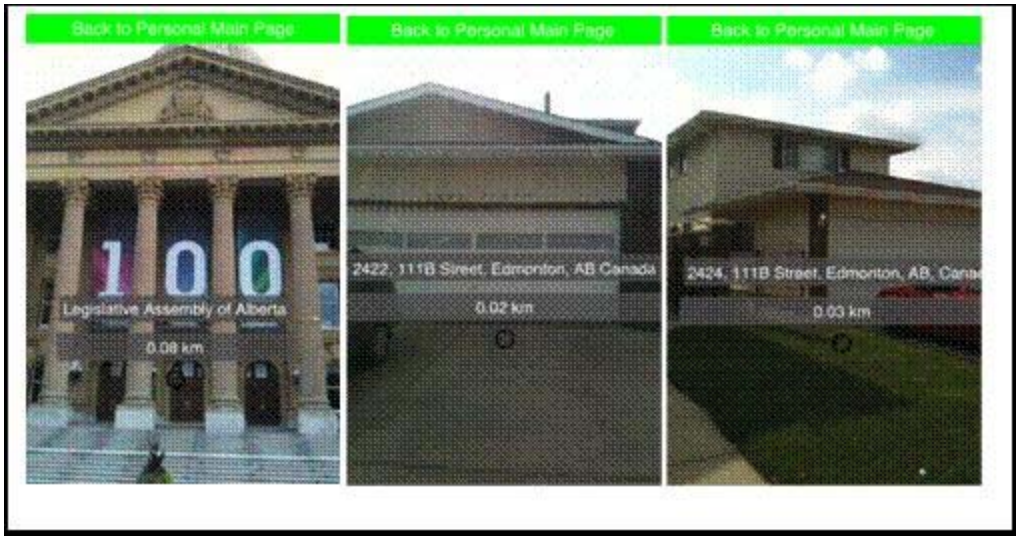


Figure 4: Location Aware learning object identification tags

The 5R Self-adjust Learning Contents

The question recognizable proof labels are touchable catches, and the learner has simply to tap the labels to get the nitty gritty learning substance. The MOIAR application can recognize various learning objects in the meantime, yet the screen space on the cell phone is restricted. So it is ideal to show just the question

distinguishing proof labels at first in light of the fact that the learners don't have to see the substance until they are directly before a genuine learning object and are prepared to learn. Figure 5 indicates diverse Location Aware learning substance superimposed on the genuine learning object, the Alberta Legislature building adjusted to their own learning profiles and statuses of three learners. There are three sections of substance in the substance see. The initial segment on the top demonstrates the name of the learning object; the second part underneath demonstrates the learner's present individual learning status, and the third part indicates learning substance. As appeared in figure 5, screenshot (5 - An) is traveler data of the Alberta Legislature Building for the course "Voyaging English". Screenshot (5 - B) demonstrates the political history of the working for the course "Political Science". The last screenshot (5 - C) gives the plan and engineering of the working for the course "Prologue to Architecture"

Figure 5: The Self-adjust Location Aware learning contents superimposed on the real-life learning object

CONCLUSION AND FUTURE WORK

The Location Aware Object Identification computation showed and executed in this paper is for the MOIAR eLearning application to suitably perceive the honest to goodness learning objects in perspective of the learners' current Location and presentation and certified taking being referred to's Location information. The MOIAR application allows the learners walk around the certifiable learning article and still watch the recognizing verification names and the Self-adjust learning substance, the length of the camera point of convergence is going up against the bona fide learning objects. Advance, the MOIAR can in like manner direct the learner to from one authentic adapting thing to others separate by challenge recognizing evidence marks. The Self-modify segment can tailor the learning substance as demonstrated by the learner's learning profile and status and the mobile phones current Location. The MOIAR application can perceive the objects of energy and additionally give the substance of interest. The 5R Self-alter part helps the learners in growing more noteworthy data in light of the way that the learning method and learning substance are fused with societal culture, life-setting, and individual learning slants. The centralizations of this examination are on the count change and its execution to reinforce using AR technique in Location Aware eLearning setting. Moreover inquire about should be on how the AR framework overhauls the eLearning application and how the MOIAR has influenced on the learners in the eLearning setting.

REFERENCES

Rajesh, M. "Traditional Courses Into Online Moving Strategy." *The Online Journal of Distance Education and e-Learning* 4.4 (2016).

Vidhya.V, Dr.L.Ganesan, Aravind.T, Nithya.M and Pranayini (2009), T9++-Intelligent predictive Text Entry for Mobile Devices, *AMSE Int.Journal on advances in modeling signal processing and pattern recognition* , Vol.52,Issue.1, France.

Tingting Fu "Personalized Knowledge-Aware Framework for Language Learning in Pervasive Learning Environment", *Grid and Pervasive Computing Workshops*, 2008. GPC Workshops '08. The 3rd International Conference on, On page(s): 316 - 319 .

Masud, A.H.; Xiaodi Huang; Jianming Yong "Notice of Violation of IEEE Publication PrinciplesEnhanced M-Learning with cloud computing: The Bangladesh case", *Computer Supported Cooperative Work in Design (CSCWD), 2011 15th International Conference* on, On page(s): 735 - 741.

Peng Liu; Guojun Dai "Computer Supported Collaborative Learning Framework for the Handicapped in Ubiquitous Computing Environment", *Networking, Sensing and Control, 2008. ICNSC 2008. IEEE International Conference* on, On page(s): 1680 – 1682.

J.M Gnanasekar, D Mieyappan, M Rajesh. "Face To Face and Online Mobile Learning System." *The Online Journal of Distance Education and e-Learning* 4.3 (2016).

Masud, M.A.H.; Xiaodi Huang "A Novel Approach for Adopting Cloud-Based E-learning System", *Computer and Information Science (ICIS), 2012 IEEE/ACIS 11th International Conference* on, On page(s): 37 – 42.

Fasihuddin, H.; Skinner, G.; Athauda, R. "A holistic review of cloud-based e-learning system", Teaching, Assessment and Learning for Engineering (TALE), *2012 IEEE International Conference on*, On page(s): H1C-6 - H1C-11.

Rajesh, M., and J. M. Gnanasekar. "Path observation-based physical routing protocol for wireless ad hoc networks." *International Journal of Wireless and Mobile Computing* 11.3 (2016): 244-257.

Vidhya.V, Dr.L.Ganesan, Praneetha, Prabhu, Pradeep(2009), An intelligent text analysis system using word net approach, *Journal of Technological world-Engineering Today*, Vol.XI, pp.21-23, May 2009.

Becking, D., Betermieux, S., Bomsdorf, B., Feldmann, B., Heuel, E., langer, P., Schlageter, G., (2004). Didactic profiling: supporting the mobile learner. *In: World Conference on E-learning in Corporate, Government, Health and Higher Education. Association for the Advancement of Computers in Education,* pp. 1760–1767.

Geddes, S. (2004). Mobile learning in the 21st century: benefit for learners, The Knowledge Tree: An e-Journal of Learning Innovation. *Keegan,* D. (2002). The future of learning: from eLearning to mLearning (Hagan, FernUniversität).

Ketterl, M.; Mertens, R.; Morisse, K. (2006). Vornberger,O. Studying with Mobile Devices: Workflow and Tools for Automatic Content Distribution, ED-Media, *World Conference on Educational Multimedia, Hypermedia & Telecommunications, Orlando, USA*, 26-30 June 2006, pp. 2082-2088.

Sasikala.P and Vidhya.V (2012),"An efficient concept based mining model for deriving user profiles", *International journal of applied information systems*, Vol 1,No.6,Feb 2012,pp26-34.

Vidhya.V, PrabhuJayaraman.M, Pradeep.R, Praneetha.C, Dr.L.Ganesan, (2008), An intelligent word net Based Approach for Text Analysis, *International Journal of Computer, Mathematical Sciences and Applications,*Vol.2,pp,281-291, Oct-Dec 2008

