

Interactive T-Learning System

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Introduction

This article introduces a new concept of T-learning (Table learning) to the world. It innovatively describes how tables can be used for interactive learning purpose and how interaction can be done between text books and interactive table. It also tells how learner can understand the concept by watching audio visual contents on the table with out any physical displays like LCD, CRT, and LED.

Here in t-learning learner has to sit on a chair and should place his text book on the interactive table and should put colour bands to his finger tip and he has to start study, when he has any doubt about any concept he has to just point out that particular object/image with his finger tip to which he has put colour band, at that time the information related to that particular object will be displayed on the table itself where he is studying. The color-band acts like the mouse cursor to indicate the position in the textbook image. Appropriate interactive audio-visual content is augmented from table as the marker is located on the predefined image objects in the textbook.

Since the “Interactive T-learning system” gives practical knowledge with audio-visual contents while learning, it is expected that it will increase learner interest towards that concept and encourage learners to discover. The goal of the proposed interactive T-learning system is to increase “Learners Level of Perception (LLP)” by providing them with realistic audio-visual content when they are studying.

Why interactive t-learning system?

Usually most of the students study by sitting on the chair and placing their textbooks on the table. But if they have any doubts in the concept or if they don't understand the concept then they go to computers and they start searching in internet for some demos and videos and explanations. In the mean while they may see some games which has already installed in the computers. These things may divert their mind and result in playing computer games and watching movies which will be a big loss to their study time. And all these are time consuming.

But here in interactive t-learning system learner need to sit in front of text book keeping text book on the table and need to point out the image/object which the learner didn't understood at that time related audio videos will be augmenting out of table. Which will be very helpful for learners to understand the concepts behind them. But learner has to put colour band to the forefinger in order to recognize the object/image from the text book. Here no need to get up from the place where they are studying so very good time saving idea too.

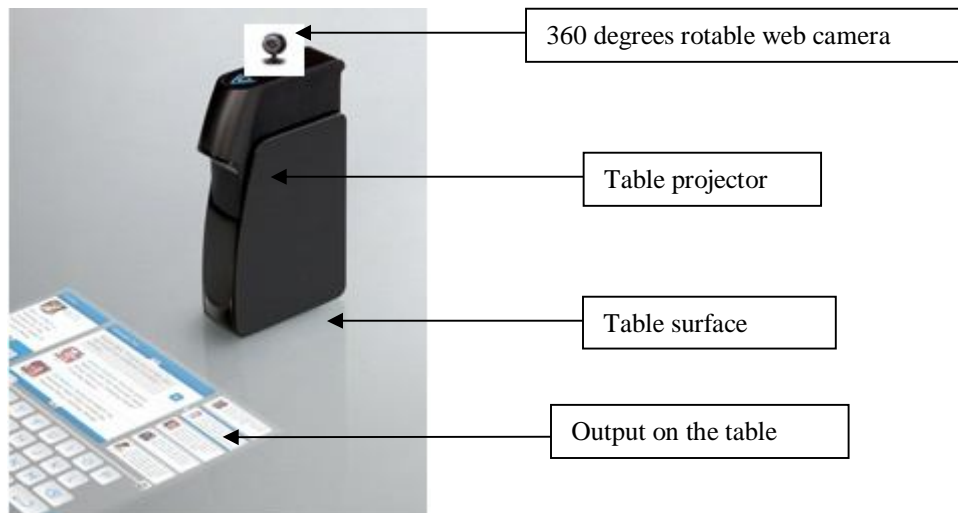
How does it work?

Interactive t-learning system uses 2 core things 1) ExperInn e-learning system 2)Table projector with accessories and additional software.

1) ExperInn e-learning system : Here in ExperInn e-learning system the learner has to upload his the scanned text book pages to ExperInn e-learning service provider's web site and has to download a learner side software from the service provider's web site and has to install in learner's computer. And has to wait for the notification.

Service providers download the scanned text book copies and extract images from them and several process undergoes like extracting feature points from the images and preparation of augmented reality videos according to the concepts. Set of concept designers, flash/3D content designers and augmented reality audio visual designers will be there at service provider's side. Finally they prepare an installable package and a notification is sent to the learner to download that package and to install it. Then learner has to download the package and install it, at that time the data base of the software will be updated with images and augmented reality videos. This software uses image/object recognition algorithm to match the images/objects from the text books which will be pointed by the learner, at that time a module in the software compares the pointed image/object with all the images stored in the image database of the learner side software for each comparison number of feature points matches will be calculated and the one image with maximum matches found will be considered as the required image and when match is found related augmented reality audio visual content which is stored in the database is retrieved and augmented out.

2) Table projector with accessories and additional software: Table projectors helps in projecting the augmented reality videos and other related useful information on the table.



The above image shows the table projector with accessories which should be connected to the computer's CPU in order to use ExperInn e-learning system facility. This smart table projector takes the input from the computer and the driver to support projector should be pre-installed in the computer. And a 360 degree rotatable web camera helps in taking input from the text book.

Actual process at learner side

First learner has to switch on the projector and CPU and has to open the “ExperInn e-learning learner side software” which asks to allow web cam, he should click on “allow” option and has to sit on the chair and has to keep the text book on the table on which his text book is kept. Now he has to put colour band to his finger which will act as mouse pointer now he should start study if he didn’t understood any image/object then he need to point it out using the finger to which he has put the colour band, that object/image will be taken as input from web cam mounted on the projector and when image matching occurs proper conceptual audio visual content is augmented out from the table right in front of the learner. Thus learner can easily understand the concept.

Conclusion

This technology introduces how tables can be used for interactive study purposes. Interactive T-learning System can be applied for PDA, Palmtops also with little modifications and suitable applications. T-learning helps most of the students in understanding concepts in a better way. It increases learner’s interests. It saves students time because he no need to get up from the study place.

BIOGRAPHIES



¹ **Chetan Kumar.G.Shetty** Studying final year in K.V.G.College of Engineering, Information Science and Engineering branch under Visveswaraiah Technological University (VTU),Karnataka,India.He is a MCTS (Microsoft Certified Technology Specialist) and MCP (Microsoft Certified Professional).He is also ipv6 certified from Hurricane Electric. He was selected for 55th ICET World assembly at University of Glasgow, Scotland(UK) , 3rd International Conference on Education Technology and Computer (ICETC)2011 July 15-16 in Changchun (China) and 1st International Technology, Education and Environment Conference (TEEC 2011) Omoku(Nigeria) and 1st International Conference on Teaching and Learning (ICTL 2011),Nigeria and 15th HK Web Symposium(International Conference on ICT) ,Hong Kong.He was awarded a grant from International Scientific Committee to support participation for oral presentation at the TEEC2011 and ICTL2011 International Conferences in Omoku-Nigeria, 5-8 September, 2011..He is Coordinator and Chief of Operations for the Space Renaissance International Indian Chapter (CCOSRIIC). He is a student member of SIAM(Society for Industrial and Applied Mathematics). He was considered as the part of Microsoft Dream Spark for High School program.He attended EXOR(Experienceof Reseach) program held at IIIT(International Institute of Information Technology),Hyderabad. His research interests include Augmented Reality, AI, Graph Theory, Wild Computing Logic ,e-learning etc.