Institution Details

Province	Sindh	**City**	Karachi
Institution	Institute of Business Administration	**Campus**	City Campus
Department	Computer Science	**Degree Level**	BS
Degree Program	Computer Science	**Telephone**	
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Project Group Details

Team Lead	Team Member's Name	Team Member's Mobile	Team Member's Email	Team Member's Institution Registration Number	Team Member's Year of Study	Team Member's Semester	Team Member's CNIC
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Project Details

Project Title	VR platform for educatopm		
Project Area of Specialization	Augmented and Virtual Reality		
Project Start Date	2019-07-28	**Project End Date**	2019-07-28
Project Summary (less than 2500 characters)	VR Based Learning Among many areas, quality education is what Pakistan is severely facing as a core issue for its development. A number of reasons subject to this problem which can include poverty, inequality of resources, lack of technical and vocational skill development, among many. We aim to bridge the gap of education in Pakistan by extending communication and accessibility especially to rural areas of the country. The telecom industry flourishes on their vast network and this network can be used to grant access to educational content in a way that would at least be as effective as the traditional method of education. Platforms like Udemy and Coursera.org present an opportunity for the user to learn a new skill from the video content available on their website. People can access this content produced by pioneers of different fields. But an actual lecture would always be better than this contemporary method. Learning and training have been a process that has been practiced over centuries but the essence has somewhat depleted over the recent times. There is a lot more going on around a screen and it becomes tougher for the individual to grasp the content elaborately. Our solution to the formerly mentioned problems is the use of Virtual Reality to create a better remote learning experience. Using this technology would allow us to build a virtual classroom that would play lectures in a 3D form. Creating an illusion of an actual classroom and providing an active rather than a passive experience. With some time invested in augmentation of the virtual composition of a classroom, one can also create a subject-centric environment as per the requirement of the content. Multiple factors play an important role in creating certain vibes and in a virtual environment, factor such as architecture, and these factors can easily be manipulated to enhance the immersion during a VR based Lecture. This Virtual Classroom will have to be carefully designed to be easily navigable. Meanwhile, at later stages, the augmentation of this classroom can be explored to make this whole experience strictly subject oriented— aiding the process of acquiring knowledge. If one takes the example of Windows as a product. One can build up the analysis that the major input is given into the development of the OS. Spreading it around the world merely takes a copy-paste action. The marginal cost of each additional copy falls down to almost nothing— especially since the Homo sapiens have found a way to send big chunks of data via the internet. To sum it all up, a cost-effective solution to above-mentioned problems will be to create a pool of educational content and giving it a 3D outlook thereby increasing attention span and ensuring active learning for students with the help of both augmented visual and audio content.		

Project Objectives (less than 2500 characters)	A conceptual basis for educational applications of virtual reality can be, 1) immersive VR furnishes first-person non-symbolic experiences that are specifically designed to help students learn better. 2) These experiences cannot be obtained in any other way in formal education. 3) This kind of experience makes up the bulk of our daily interaction with the world, though schools tend to promote third-person symbolic experiences. 4) Constructivism provides the best theory on which to develop educational applications of VR. 5) The convergence of theories of knowledge construction with VR technology allows learning to be enhanced by the manipulation of the relative size of objects in virtual worlds, by the transduction of otherwise imperceptible sources and by the visualization of abstract ideas that have so far defied representation.

Project Implementation Method (less than 2500 characters)	Step 1. The specific course objectives are defined(e.g chemistry, physics, etc). Step 2. The objectives that could use a simulation, computer-generated simulation or virtual reality (a 3D simulation) as a measurement or means for attainment are selected. Reasons to use and advantages of using simulations and virtual reality are considered when making the selections. Step 3. Refine the selection list by choosing those that can use a 3D simulation, using virtual reality, as a measurement or means for the attainment of course objectives. Step 4. Determine the type of interaction with, and sensory input and output to and from, the virtual world or environment needed, (e.g 3D sound, audio, visual, text, gesture). Step 5. The virtual environment (VE) is designed and built. According to requirements of the objective, it may be built by an instructor (teacher), by the students or obtained prebuilt and modified. Step 6. The resulting virtual environment is evaluated using a pilot group of students. Step 7. Evaluation results are used to modify the virtual environment. Step 8. Evaluation results are used to modify the virtual environment. Evaluation and modification continue as long as the virtual environment is used with the target population.

Benefits of the Project (less than 2500 characters)	• One major advantage of using virtual reality to teach objectives is that it is highly motivating • VR grabs and holds the attention of students. This has been documented in the reports of a number of research studies. • VR grabs and holds the attention of students. This has been documented in the reports of a number of research studies. • VR allows an extreme close-up examination of an object. VR gives the opportunity for insights based on new perspectives. • VR can change the way a learner interacts with the subject matter. VR requires interaction. It encourages active participation rather than passivity. • VR allows the disabled to participate in an experiment or learning environment when they cannot do so otherwise. They can do chemistry and physics lab experiments and learn by doing • VR allows a learner to proceed through an experience at his or her own pace. The learner decides what to do when interacting with the virtual environment.

Technical Details of Final Deliverable (less than 2500 characters)	• VR based user interactive interface design • Unity 3D/React based application for VR content • 3D video/images • VR headsets i.e Oculus Rift, Google cardboards • Gyroscope supported smartphones

Final Deliverable of the Project	HW/SW integrated system
Type of Industry	Education
Technologies	Augmented & Virtual Reality
Sustainable Development Goals	Quality Education, Gender Equality

Project Key Milestones

Elapsed time in (days or weeks or month or quarter) since start of the project	Milestone	Deliverable
Month 1	Analysis and Documentation	Word Docs
Month 2	Finalizing base requirements from research papers collected	Word Doc
Month 3	Deciding upon initial system design	Wireframe
Month 4	Identifying missing System requirements	Word Doc
Month 5	Reviewing and finalizing system design	wireframe
Month 6	Coding and development	1st Prototype
Month 7	Unit and System of prototype	Beta Version Prototype
Month 8	Coding and devlopment	Finalizing product
Month 9	Testing and deployement	iOs/Android application

Project Equipment Details

Item Name	Type	No. of Units	Per Unit Cost (in Rs)	Total (in Rs)
VR headset (All in one standalone)	Equipment	2	35000	70000
Experimental costs (Google Cardboard etc)	Miscellaneous	1	10000	10000
			Total in (Rs)	**80000**

I affirm that all information submitted through this FYP application is correct and complete as to my best knowledge. I further agree that Ignite can approve, reject, defer or cancel this FYP application without mentioning any reason at any stage of NGIRI 2019. Information cannot be changed after submission.