**Project Report**

The role of Augmented Reality in making a safe workplace in teaching, learning, training purpose, planning processes etc. in the context of University of Central Asia.

**Introduction:**

GOAL

* What are we trying to accomplish?

In this research paper, we will be discussing and designing a safer workplace with the help of Augmented reality, in context of University of Central Asia, Naryn Campus. Initially, we will explore the notion of Augmented Reality itself and how it can be used to assist humans in certain way in order to avoid any future hazard and carry out any task efficiently and safely. Augmented reality is often confused to with virtual reality, but the two terms are totally different in terms of how they work. Virtual reality implies a complete experience that does not include the interference of any physical world, and in contrast, Augmented reality provides an experience of both virtual and physical world in concurrent. Now, we can use Augmented in reality in certain way, as per the situation now it is quite impossible to work in the office as we have to maintain social distancing to avoid any physical contact in fear of getting the virus and work from home is encouraged these days. So, in these situation, we can get help form technologies like Augmented reality to carry out the task from miles away physically sitting somewhere else, but be virtually at some other place to have the same experience of working at office with the help of augmented reality tools, so that the lives of people will not be at risk and at the same time carrying out the task quite efficiently. Augmented reality helps to improves the process from delivering of excellent quality training of the employees or the employers to practical on the sport use of certain items to prevent workplace incidents and accidents which might be lethal and hazardous in certain scenarios. For example, for the workers on the job, imagine giving them the power to see the manuals without actually being present at the place, get or give the instructions, and tips as they were being given instruction on some type of equipment. The use of Augmented reality in classroom while teaching can be one of the big future things to aid students in understanding the concepts quite easily and in a safe environment. Using augmented reality in the classroom can turn an ordinary class into an engaging experience. AR technology provides virtual examples and adds gaming elements to support textbook materials. As a result, classes become more interactive. AR helps students better remember the information they’ve just learned. So, considering all the things mentioned above, we will try to design the workplace or the environment where we can use Augmented reality in certain areas within the UCA’s campus in certain activities to maximize productivity and at the same time taking into consideration of the safety of every individuals and avoiding any harmful activities.

* Who would benefit?

Since, we are trying to implement the use of Augmented Reality to design a safe work place with in an education organization (UCA), so the people whole will he getting benefits from this technology would be the students, faculties, the working employees, higher officials, the one coming to visit the campus, and the working and security staffs. The augmented reality will not only be used to for teaching and learning purpose in a safe environment beyond reach of any hazards, but it will also be used to training purpose. Like it will be used to train the students, employees, and security officials to simulate the drills and how to tackle or handle any emergency situation like school invader situation, fire drills, or in an earthquake situation. So, it has multiple application and benefits and almost all the people will get benefits upon the successful proposing of our model of using Augmented reality in making the work place a safe environment for all the people attached to the organization.

PREVIOUS WORK

* What related work other people have done?

The technology is evolving as per the passage of time, and we will see many advancements in the upcoming future in terms of efficient computers, better augmented reality equipment in cheaper price and so on. But right now, when we look around, we cannot see much things implementing Augmenting reality, as compare to what can be achieved through it. We can see a lot of proposed research works and methodologies in regard of implementing Augmented Reality in different workplace for the ease of all staff working actively or have indirect relation to the organization, but the actual implementation if far behind. The technology related to Augmented Reality we have right now is that much advanced that everyone individual can get their hands on it, the only one we can use it the google AR lenses, which is the best innovation in relation to augmented reality. The use of augmented reality can be seen in the high ranked organization and institutions like in the military they use the augmented reality in order to aid the military pilot in handing the plane or in the process of attacking the enemies. But we barely seen the implementation of Augmented Reality in the sense of educational institutions. We have a lot of things in the fiction movies in relation to augmented reality, which will be possible in the near future as the advancement of technology improves, but at this point of time there is not much things can be seen in the actual implementation of this technology in the industry. Many peoples have published the prosed methodologies on how we can use this specific technology in accord to education and minimizing the risk, as some of it can be seen in the reference section at the end of this paper, but we have to wait for the actual technology to come, so that we can witness the actual implementation of all our proposed methodologies in the industry in order to make the human lives better.

* Do the previous approaches fail/succeed?

**Methodology**

**Description**

Firstly, the task would be to choose an area within university with its specific interest to use the AR tools. Secondly, to identify the AR gadgets and tools that would be best suited for the institute workplace. And lastly to provide the institute or the working staff with the clear instruction about the use of the gadget, in addition the instruction of its benefits and drawbacks should also be mentioned. Among all these work the hardest part seems to be the training of the people to use the AR in its proper manners to keep them and the institute in safe position. So to get over with the hard part the institute should have multiple plans for the training and getting the people in the use of new technology or having more than one way to bring the change in the institute which in our part would be to introduce the use of AR.

**Applications:**

1. Remote access to medical professional- UCA Healthcare
2. Safety Training for Students/Staff using AR app – SLA & Management
3. Campus Tours during COVID-19 era – UCA Admissions Office
4. Wider Internet Coverage for lesser people/m^2 – Operations, SLA

**AR Gadgets and Technology**

1. *Microsoft’s Dynamics 365 Remote Assist* on HoloLens and mobile devices enables cross-distance collaboration by sharing a live view with experts for assistance. Experts can directly annotate what you are looking at to guide you through a process. Previously used in the workplace for field service repairs and training, remote assist scenarios can be extended to emergencies in remote locations where an expert, such as a medical professional, may not be readily available.
2. *Gamified App with Animated Videos* provides the workers & students hands on experience for demonstrating and practicing things like shake drills, fire drills, etc. Additionally, they might learn the emergency exits in case of an emergency or learn the communication tools to send an immediate report on an accident to respective people
3. *Gamified App with Animated Videos*
4. *App that combined geographic information (GIS) and building information modelling (BIM) data*, UCA management are able to improve their design at a level of detail it would take weeks to find using more traditional methods. For instance, there are so many spots where Wi-Fi penetration is so low so that UCA has to hire professionals to fix this issue. Instead, a more efficient solution would be ask students to send their GPS where there is poor Wi-Fi and handle the issue accordingly. This might prevent students from gathering in one places where Internet speed is high, hence providing a safe workplace in the COVID-19 epidemic time.