Interactive Studying for Nursery Kids and Illiterate from Rural India: AR- based App

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Abstract **- This paper presents an educational application for Nursery Kids and Illiterate from Rural India using Augmented Reality (AR) technology, which makes easy, interactive, informative, enjoyable, and interesting to the kids and Illiterate People.**

Augmented Reality (AR) is an interactive experience or a combination of real-world and digital data. It simplifies and enhances user knowledge of interaction with physical world by imposing virtual images on real ones. This is the new way of manipulating how we interact with that world, without replacing the real world. Augmented Reality has manifested in various fields today like Education, Navigation, Games, Industry, Medical, Advertisements, Training Classes and Architecture.AR in education will soon affect the conventional learning process. Our approach has the potential to speed up the design of 3D views of view of objects related to that letter and help kids to learn and realize concepts in a better and interactive way. The idea presented in this report is to show how AR can be used to enhance the learning experience of kids The app can be used to reduce irreverence of kids who not interesting to learning.

Index Terms **- Augmented Reality, virtual reality, education, and training.**

1.MOTIVATION

The technological revolutions having occurred in many areas also had an impact on kids during teaching learning process. The main problem that arises during the teaching-learning process in schools and institutes is that students are not able to understand the concepts that they are being taught in the class due to unavailability of proper tools to explain the concept in detail. Most of the times, students have to visualize the concepts taught on their own by imagining things to be a certain way. However, this doesn't help much as the student imagination power is limited to a particular level and they cannot understand a concept by just assuming it to be in a certain way without appropriate knowledge. So, Images created by using AR technology allow students to learn and understand more of a topic in certain field of study because students are able to watch and learn from the images instead of imagining it based on the words in the textbooks. According to the survey that we conducted, students in villages lack a lot of facilities as compared to the students in city areas. This is another important reason that we are developing such an application which will ease and provide optimal way out for education.

2.VISION BASED PEOPLE TRACKING

Our people tracking system uses a model-based Sequential Monte Carlo (SMC) Filtering approach to track multiple persons in an observed area. We use a single, ceiling mounted camera that observes the scenery from a bird's eye view. Each person entering the area is detected by analyzing the pre-processed, background- subtracted camera images and assuming that BLOBs which cannot be associated with already detected persons indicate a new person. Persons who are already recognized by the system are tracked by individual Particle Filters that use 300 weighted hypotheses of the object's position to represent its uncertainty. All persons are rep- resented in three-dimensional Cartesian space as spheroids with a height of 180 and a width of 40 cm. For each hypothesis we use the spheroids and the knowledge about the image formation process to generate virtual images that show a possible appearance of the per- son on the image plane. To evaluate the weight for each hypothesis our measurement likelihood function compares the region around the hypothesized ellipsoidal area of that person in the image with the current camera image. The likelihood measurement function takes also dynamic occlusion from the other persons into account and uses the three-dimensional representation to reliably estimate the weight of each hypothesis. As a person's leaves the scenery the covariance of its corresponding

position increases due to from now on widely spread particles. The people tracking will now delete the corresponding particle filter.

3.MOBILE HARDWARE

We use a laptop equipped with a VGA-webcam running at 30Hz as wearable computing platform. The camera is used for the initial pose estimation from a binary square marker as well as to capture the live video stream for showing the augmentation. An inertial sensor is attached and registered to the mobile device. The de- vice connects to a central server using a Wi-Fi connection to send own position data and request the position information of the people tracking system.

4.REGISTRATION

In order to use the position information of the people tracking the user has to register his device to the environment: By pointing the webcam of the user worn device toward an optical square marker, which was previously registered to the environment, the exact pose information of the user's device within the building can be estimated. The location information of the pose links the user to his individual trajectory observed by the people tracking system at real- time. An identity mapping client associates the identities of the people tracking with the user information by estimation of the minimal distance of the two positions.

5.SENSOR FUSION

CoM is characterized by high humidity and tissues particles that are swirling through the air. The production site of the wind power plant hub producer contains dusk from the casted raw pieces, metal chips from the milling process and traces of various lubricants.

At both production sites, workers need to wear security glasses, hard helmet, noise protection and gloves. In the high precision gear factory, traces of various lubricants and metal chips are present. Here, workers need to wear security glasses, noise protection and gloves.

As long as the camera is aimed at the square marker, the marker tracking provides the device's pose since this is the most accurate pose information in our scenario. As soon as the camera is pointing away from the marker, the device's pose is determined by a complementary fusion of the people tracking system and the gyroscope. The people tracking system estimates the position of the person, which roughly approximates the device's position, whereas the orientation is estimated by the gyroscope attached to the user's mobile PC.

6.POSSIBLE APPLICATIONS

Beside surveillance and behavior estimation we introduce some topics where people tracking could be of interest and further ap- plications are planned.

Medical:

Because imaging technology is so pervasive throughout the medical field, it is not surprising that this domain is viewed as one of the more important for augmented reality systems. Most of the medical applications deal with image guided surgery pre-operative imaging studies of the patient, such as CT (Computed Tomography) or MRI (Magnetic Resonance Imaging) scans, provide the surgeon with the necessary view of the internal anatomy. From these images the surgery is planned.

Entertainment:

A simple form of augmented reality has been in use in the entertainment and news business for quite some time. Whenever you are watching the evening weather report, the speaker remains standing in front of changing weather maps. In the studio the reporter is actually standing in front of a blue screen. This real image is augmented with computer generated maps using a technique called chroma-keying.

Robotics and Telerobotic:

In the domain of robotics and telerobotic an augmented display can assist the user of the system. A telerobotic operator uses a visual image of the remote workspace to guide the robot. Annotation of the view would be useful as it is when the scene is in front of the operator. Besides, augmentation with wireframe drawings of structures in the view can facilitate visualization of the remote 3D Geometry.

INDUSTRIAL SITES

The production environment of the paper tissue producer in Pre-

CONCLUSION

In recent, efforts have been made to use augmented reality as a digital device for education. AR technology provides a better means for students learning in an interactive environment. It allows students interact while enabling social communication. It enhances the effectiveness and attractiveness of learning environment in a real world scenario. AR technology introduces a new type of automated applications and to enhance the effectiveness and attractiveness of learning environment for the students in a real-world scenario. AR technology provides a better means for students learning in an interactive environment. This methodology of the application will help to provide the effectiveness learning environment in a real-world scenario. Future scope involves tasks such as use of more interactive learning objects with more student engagement and interaction.

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