Virtual Reality in Mobile Communication with Cloud Based Data Base Management

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ABSTRACT: *The world of communication is made smarter by the introduction of the smart phones. Cloud computing enhanced computing and database management system and its expanding service gratify almost in all the area of computer science. The emerging technology VR-virtual reality gives new experience in visualizing the image. The mobile phone become a part of the each human begins for communications and security. New image processing algorithms are commenced to execute image processing for social media like Twitter, Facebook etc. Image processing extends its hand in library applications. In this proposed system we are incorporated the virtual reality system to mobile phone to make more reality in communicating experience facilitated with the cloud based database (DBaas) with the aid of the image processing techniques.*

Keywords: VR- Virtual reality, DBaas- Database as Service

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1. Introduction

1.1 Cloud based database management

The cloud computing is become most popular in computing and data processing. It extended is service as the pay pre use model. The significant service of cloud computing such as software as service, platform as service, database as service, and many other services are resides in it. The cloud based services are provided by various vendors such as Microsoft azure and the Amazon Web Services etc. Each service is different from its service and traffics. Cloud base database are implemented by a range of ways the most popular service of cloud base database are DBaas- Database as service. In the DBaas the service provider maintain the database for their clients and clients are free from maintain their own database. The famous DBaas service provider in the market is Amazon web services provider. It has different servicers such as SQL data model, Nosql. Famous companies that are provider of the SQL data Model are IBM, Oracle, Postgre QL, Amazon database as service etc. Amazon DynamoDb, CouchDb, MangoDB are some of the leading service providers in the Nosql database service.

1.2 Virtual reality

Computer created simulated environment as that of realistic environment is called virtual reality. The 3D images are viewed with the combination of audio and with special effect as it seems as real that exits in the real world. Virtual realities are display on the computer screen and with the help of the special device called stereoscopic display. With the combination of the software the virtual reality are widely used in mostly gaming and in medical application. As per the Michael R. Heim statement virtual reality have various significant feature such as interaction, immersion, simulation and network communication [1]. The virtual reality architecture is shown in fig. 1.The real image geometrical measurement with angle of the x-axis and y-axis are taken as input. The clipping images are transformed as 3D based image with the sufficient pixel followed by transformation of image via networks and displayed. Many input device are used in creating the virtual reality environment such as helmets, glasses, joysticks, mice etc...Theses device are used to measure, record the signals and make them as the real world environment. Signals are manipulated and converted in the computer generated real world. The high powerful computation is required to perform the computer graphics. 3D enabled glass is used to display the signal as the output to the user.

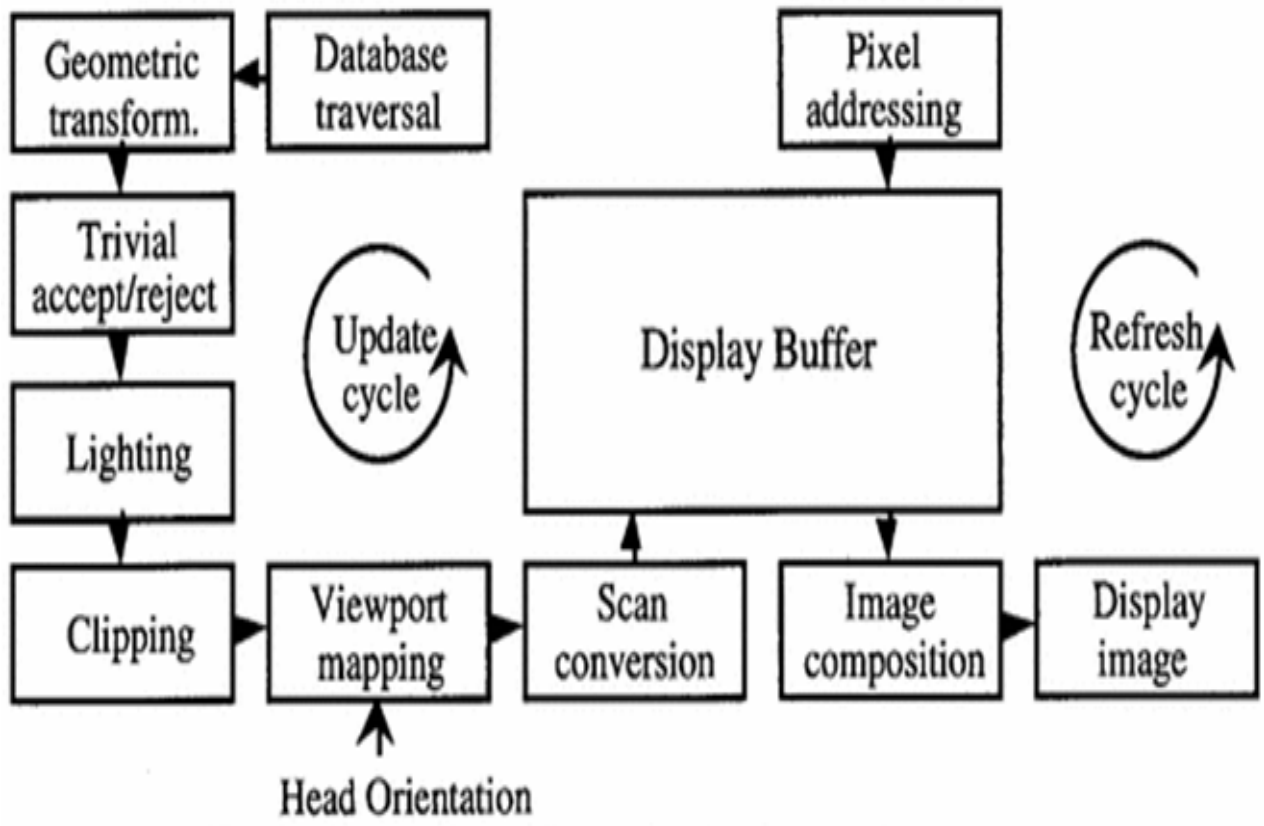


Figure 1. Conventional Virtual Reality Display Architecture

1.3. Mobile phone networks

The mobile phone networks are used all over the worlds for communication and data exchange. With the introduction 3G and 4G network connection use of the internet are in demand for its fast services. Each day 1000 million bits of data are changed between the devices from one part of the world to other. Expand of the bandwidth in the networks extremely facilitate in transforming the lager quantity of data over the internet connection threw mobile phone networks. Technology has endowed the mode of transformation of data from on part of the world to other part in an efficient and effective way.

2. Proposed work

Today smart phones are common and used by people all over the world. With the integrated of sensor like accelerometer and gyroscope, touch sensor, image sensor, proximity in smart phone provide a sophisticated environment for the user. Each sensor

is computing different data from the user such as location, touch and other operations. In this proposed system 8 sensors are in front of the smart phone to get sense object movements to establish virtual reality environment.

The proposed process is show in the figure.

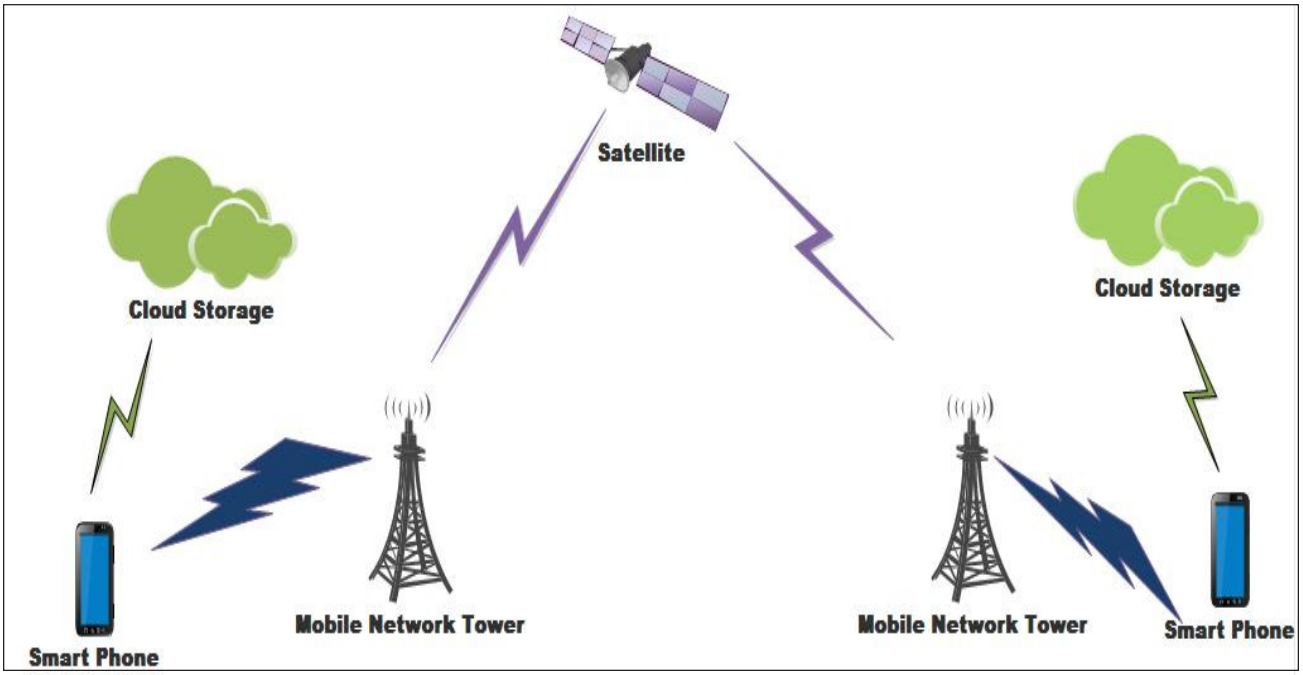
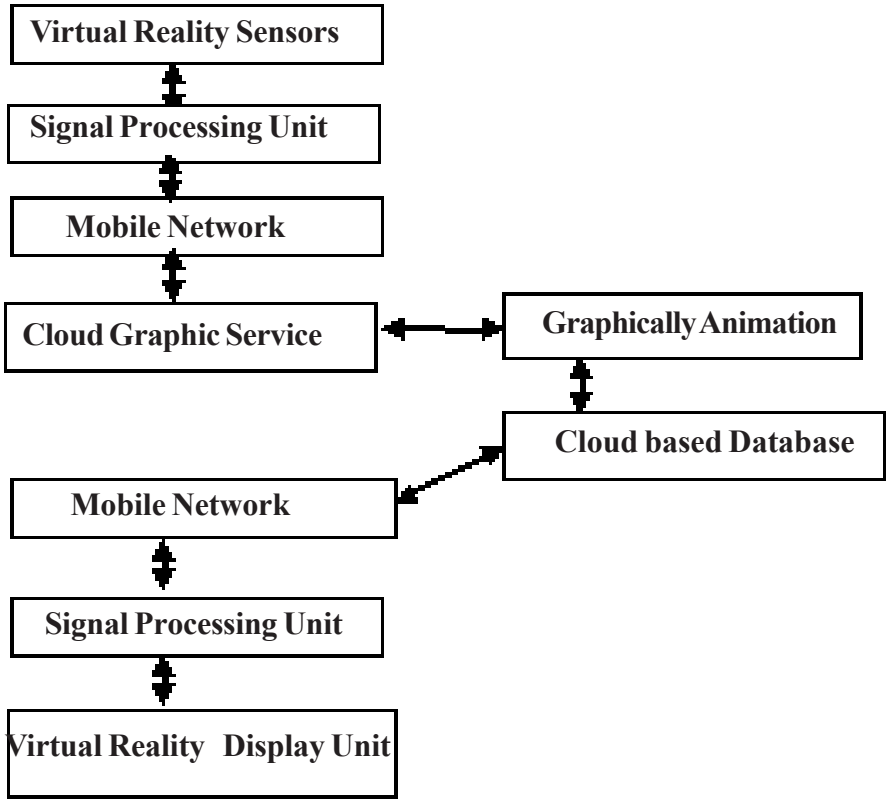


Figure 2.Virtual reality Communication Process

The sensors that fixed in front of the smart phone are active by a special type of software. Sensors are capable of capturing the degree of rotation with the pitch, yaw, roll of the object. Pitch – Horizontal axis, yaw- vertical axis, roll- normal axis of the view angle. Pitch and yaw are accomplished with the left and right sensors where as the roll of the object are computed with other sensors. When the signal are recognized by the sensor unit the several texture mapping are in processed to make sense the object action. Rotations of the object are analysis and recognized with the range of virtual reality algorithms. Sensor signal are encoded in with software in the smart phone. The encoded signal is transfer to the cloud based service threw mobile networks as data. These data are collected in with the help of cloud based service called plat form as service. In this process the encoded signal received from the sensor of smart phone is process with the high processing computer. Signal image are converted into the 3D image as it as the reality world image. Each node signal is processed separately and mode of operation is calculated using virtual reality algorithms. Efficient algorithm is used in computing and calculating signal for sensors nodes. With the help of plat form as the service the high speed computing are accomplished to make the process more fast and reliable. Computer animated graphic image are high in quality and increases in file size. Animated 3D image are stored in the cloud based database. Cloud based database are used to store large image size by using the database as a service. Data which are present in cloud based database are linked with smart phone to minimize virtual reality process in the smart phone. Virtual images are displayed with the special designed spectacle. Display unit are linked with the smart phone with a high speed wire. The proposed sensors are show in the figure.

3. Future work

The world is moving to 5 Generation communication system with high speed data communication system. In future virtual reality is simple in implementation and execution. We are in research to identify the uncomplicated sensor to be used in the smart phone. Software is too designed and implement with the cloud base services. Network Band width for communication is too characterized and standardized for the virtual reality communication. Introducing touch sensible sensor to make the communion as it as real world communication. In this proposed system several research are evolution for improvement and implementation.



4. Conclusion

When the proposed systems are implemented it gives the reality of real world in the hand for each human begins with the advanced features. Proposed system brings a real feeling of communicating face – to –face with each other with the real background environment. Virtual extends it hands in medical, education, entertainment and all real world operation in the future. With availability of high speed of data transformation and communications virtual reality are possible to for implementations. Cloud computing gives new platform to process virtual reality images in supper fast computer gives a feasible solution to the researched to showcase virtual reality to the people. Latest algorithms in the image processing technology give a realistic approach for Virtual reality image processing system with empowerment of the Cloud based database system.

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