Ubiquitous Computing: A Basket of Advantages

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ABSTRACT— ***Ubiquitous Computing, The next step to move in Computing world. In Ubiquitous Computing computers will be entrenched in our ordinary atmosphere and communications with ours- both friendly and physical. Ubiquitous (Pervasive)computing will always help to arrange and intercede friendly communication whenever and wherever these whereabouts might arise. Goal of this paper is to give a clear view of advantages of ubiquitous computing that how this technology provides increased intelligence, awareness,understanding and functionality.***

***Keyword*—Computing, Communication, Pervasive computing, Intelligence, Ubiquitous computers**

I. INTRODUCTION

Ubiquitous computing is technology in software engineering and computing science where computing is made to use everytime and anywhere. Ubiquitous computing is also known as pervasive computing which can occur using any device. The technologies which supports ubiquitous computing e.g. Internet, advanced middle wares, operating systems, mobile codes, sensors, many type of microprocessors, new input output and user interfaces, networks, mobile protocols, location and positioning and new materials. Ubiquitous computing (Ubicomp) is a computing by which we can access computing devices anywhere in a coherent and integrated form. In modern age, technology is moving with the computers to everyday devices with embedded, modern technology and connectivity as connectivity as technical computing devices become good responsively smaller and more effective and powerful, also known as pervasive computing.Ubiquitous computing (UbiComp) captures the view of integrating computers into the environment rather than treating them as distinct objects, which should result in more "simpler" forms of interaction with a "smart"society than current, screen-based user interfaces.

Ubiquitous computing is a set of attributes and capabilities that define the extent of its features. Some characteristics like context awareness,autonomy and energy autarky are not expected until later, which can be taken anywhere [8]. In Ubicomp environment any technical device can be access by any user. By using this technology user can communicate with the system by using mobiles, laptops, tablets and the most using device smart phones. In present age the most using technology like operating system, internet, middlewares, sensors and mobile protocols are used to give a technical support for this ubiquitous computing.

II. HISTORY

Ubiquitous computing was firstly introduced at the Olivetti Research Laboratory in Cambridge England. The phrase ofubiquitous computing coined around 1988 by Mark Weiser, during his tenure the chief technologist of the PARC (Xerox Palo Alto Research Center), John Seely Brown, Both began building early incarnations of pervasive computing gadgets in the form of "pads", "tabs" & "boards" and wrote some of the earliest papers on this computing, largely describing it and sketching out of its major concerns. The word pervasive computing followed in the late 1990s, largely famous by the first creation of IBM's pervasive computing division. Mark weiser saw this term (ubiquitous computing) in a more idealistic and academic sense as an unobtrusive, human-centric technology vision that won't be realized for many years, the industry has

coined the word "pervasive computing" with a slightly different slant.Ubiquitous computing represents a great evolutionary step in a line of work time back to between 1970s. Two distinct steps in this evolution that first one is mobile computing and distributed system.

III. FRAMEWORK

Object tagging is a good concept for many interesting pervasive computing application or ubiquitous computing ("ubicomp") applications. By linking small electronic tags to physical objects, these objects can be auto-identified and placed when took into the vicinity of a tag detection system. real-world instances is the prerequisite for "smart" behavior, the framework of ubiquitous computing supports basic functionality for smart instances such as associating specific information and Functionality to instances and providing an artifact memory, event propagation, location management and some other basic services for smart instances.

During the last some years many numberof smart identification based applications have developed in areas like smart technology basedgames, home automation devices and office management automation devices. These applications are based on non-trivial communications betweenmultiple tagged instances. Existing ubiquitous computing infrastructure such as cooltown [3], one world [4],gaia OS [5], Stanford interactive workspaces [6] don't provide appropriate applications level frameworks to substantially supports the implementation of all application.

IV. ISSUES

In present scenario technology becoming more advance, much integrated and embedded with the mobility devices, some barriers between technical and social aspects become blurred. The all new technical devices must be integrate with existing PCs and a big issue of nomadicity, security and a large number of frauds and dangling with display etc.

In this ubiquitous computing environment every user want a security policy which will simultaneously be an unobtrusive mechanism to the user and have the ability to find out the services present for the user in a visible manner. Every system need a higher security policy which is very flexible to modify and update on the fly. Some big issues in ubiquitous computing technology are following-

A. Location Detection

In this surroundings and because the large no. of devices can be actually vast. It is a very hard task to detect the physical device with user is interacting. For the use of ubiquitous computing user want a secure interaction platform along the devices authentication.

B. Heterogeneity

Due to ad hoc and distributed nature of the ubiquitous computing environment, this is open to several antique vulnerabilities and suffers from quite large no. of known problems whose good solved solution cannot be apply here.

C. Privacy

The issue of privacy come up in two cases with equal priority:

- The first one issue of privacy of the user is being maintained?
- The second one issue of privacy of the data is being maintained?

V. CHALLENGES

The major challenges in pervasive computing start from integrating large scale mobility with the ubiquitous computing functionality. In this ultimate form, pervasive computing means any technical device, while moving with user, can build

increasing no of dynamic models of its much environment and configure its services. The all devices will be able to "remember" past nature users accessed in, thus helping user to work out when user securely build up services in new nature when user enter them.

The moving towards ubiquitous computing takes multiple novel social, technical and organizational challenges. The emergence of pervasive computing will arrange a good and exciting opportunity for further research. As proof by the articles here, learning pervasive computing presents many antique challenges. First one pervasive computing is presently in early stage of development. Some researchers are still "dreaming" and "making problem" as much as they are resolving problems and recording and learning about effects[9].

VI. APPLICATIONS

By the help of ubiquitous computing, many works can be possible easily. Some applications of ubiquitous computing following are:

A. Aware media

Ubiquitous computing helps to display information of work which are going on in operating hall [10]. Progress bar also helps to show detailed information about progress in hall.By the help of this technology we can track the location of that person who is working in operating room (Fig 1).

Fig. 1 operating hall

B. Location tracking

By the help of ubiquitous computing we can track location of any person (Fig 2). To track the location in this technology Bluetooth used. It Sends theBluetooth signals to the infrastructure. To locate some type of Chips put on shirt's collar or pocket during workingtime and these devices Charge at night.

Fig. 1 location tracker

C. Aware mobile phone

By the help of ubiquitous computing those Programs which runs on Symbian or smart mobile

phones (Fig 3). It provides the overview of those people who are on work.status of surgeries can be shown in operating hall and also the find out the people's location, schedule and self-reported status.

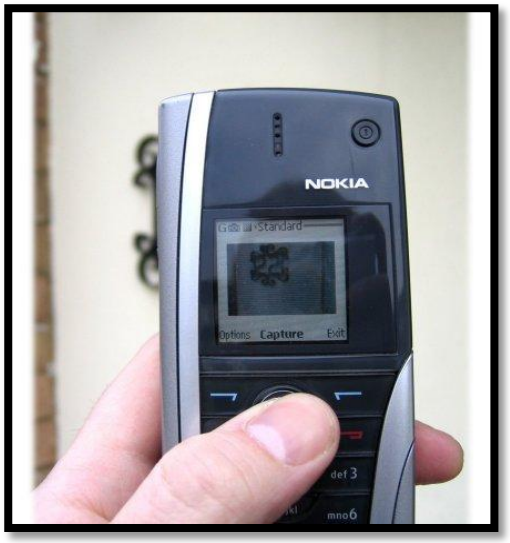

Fig. 1 Symbian mobile phone

VII. CONCLUSION

This paper encompasses the evolution of new computing vision, ubiquitous computing. The paper also highlights the underline framework and the application domains. Issues and upcoming challenges are under research and the solution for the same is under study.

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