

A Review of Ambient Intelligence System and Study of its Applications

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ABSTRACT: Ambient Intelligence is a perception of future information socially stemming from the convergence of ubiquitous computing, universal communication and intelligence user-friendly interfaces [7]. Ambient Intelligence(AMI)has emerged in the past 10 years as a multidisciplinary field within ubiquitous computing, attracting considerable research ,funding and public attention and leading to many research groups, and conferences specifically focused on Ambient Intelligence topics.[6] Ambient Intelligence bring intelligence to our everyday environment and making it more sensitive to us. In this paper we will give the brief review of some case studies on AMI. The AMI contributing area have shown rapid growth in their respective field. AMI research is growing and the resulting technologies augur well to transform daily human life by making people's surrounding feasible and adaptive [1]. Application include in AMI is at home, care of elderly, healthcare, commerce and business and the group decision making.[3]

Keywords: Ambient Intelligence, Context Awareness, Embedded, Adaptive, Anticipatory, ubiquitous computing

I. INTRODUCTION

Ambient Intelligence is not prediction of the future but a perception [7]. It put the attentions on user-friendliness, user-empowerment and support for human interactions. Ambient Intelligence is characterized by their popularity, clarity and intelligence. The ambient intelligence was created by the European Commission, when in 2001 one of the its programmer Advisory Group , the European Community's Information Society Technology(ISTAG),launch ambient intelligence challenge (Da Costa et al., 2001) , later updated in 2003 (Da Costa et al., 2003)[3] . Ambient Intelligence is a future perception in which the environment supports those inhabiting it [3]. This environment envisaged includes interconnected, adaptable, dynamic, involved and intelligent [3]. Instead processors and sensors are integrated in everyday object. Examples instead of using mice, screen and keyboard, household device and these may communicate with each other and with other people's device [3]. The idea of an automated home has been around since the 1960's, where homes are wired in order to automate certain tasks. Sutherland design includes applications controls, temperature regulation, shopping list computation, family inventory tracking and even weather prediction. Smart homes have the ability to unlock a number of functions and applications that are unavailable before. It is also one of the key components of smart grid which is the focus of many utility companies in the world.

II. LITERATURE REVIEW

Ambient Intelligence Application: At Home Ambient Intelligence vision quite aimed at a few domestic surroundings. Ambient Intelligence at home can provide relevant awareness and activities to support everyday life. For example the bathroom mirror can remind a person of the medication he/she has to take, and the car stereo can tune into the same station that was on during breakfast. So many ideas and functionalities are remote visuals, self-monitoring and self-painting walls, lighting and furniture recognizing emotions and moods. Some have already made prototype, such as learning how to prioritize open or shut windows and lighting and heating levels of people living alone. In general, some common ambient intelligence – based device are available on a regular basis such as temperature sensitive heating system, moving- sensitive lighting and light sensitive visually. They have given a brief view of basic housing supportive function. The main objective of home is to make the current task(such as heating, plumbing, ventilation, air conditioning, HPAC, lighting, electrical and other installation: fire and theft alarms, control of electronic equipment)easy, integrated , and/or even automatic .People can control lights or heating by using switches and controls. Here, ambient intelligence means that residents are identified in the home automatic system and these functions are adjusted according to some of its external standard according to known preferences. There are high requirements for functions, reliability and poor tolerance related to tasks that control the physical environment such as HPAC and safety.

III. APPLICATIONS OF AMBIENT INTELLIGENCE SYSTEM

Ambient Intelligence brings intelligence to everyday environment and make environment sensitive to you [3]. Ambient intelligence research builds upon advance in sensors and sensor network, pervasive computing and artificial intelligence. Here Scenario is explained by applying AMI in our home so that it will make a smart home. The following events can happen when return back to the home on a typical day.

1. Recognized by intelligence surveillance camera.
- 2.Door alarm switch off; door unlocks and opens.
- 3.In kitchen family memo frame lights up to indicates there are new messages.

A system can be building such that it acts like “electronic butter”, which senses the features of user and environment and finally selects actions to take which will finally benefit

the environment [1]. The ambient intelligence paradigm builds upon pervasive computing, ubiquitous computing, profiling, context awareness and human centric computer interaction design, of which is characterized by system and technologies.

By the survey done on learning patterns in ambient intelligence environments says that the research work carried out up till now in whole world has only concentrated on technologies and efforts has been made to techniques for the development of AMI environment. This provides a new opportunity in the field for developing new techniques rather than to concentrate on the well-known machine learning techniques. New opportunities for future works can be related to the importance of security and privacy in these environments.

Friedewald et al. [2005], discussed the opportunities provided by the ambient intelligence in the environment of home and describe the risk and the balance between the technologies enhancing or technologies overburdening the life of common people covering the four areas like home automation, communication and socialization, rest, refreshing and sports, household works and learning.

IV. CONCLUSION

By studying the various applications of ambient intelligence such as smart homes, health care, commerce, care of the elderly, healthcare and tourism where we come across all types of requirement, challenges, trends and technical developments also the human reaction towards these studies, applications and technologies. We have already been using various types of ambient services in our lives and are gaining more and more importance as well as their growing applications and the future scope to their evolution is enormous. The challenges for research and developments in AMI undoubtedly are very exciting.

V. REFERENCES

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