An Exhaustive Study and Analysis of Assorted Application and Challenges in Fog Computing and Emerging Ubiquitous Computing Technology

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ABSTRACT

The growing demand of new technology is impulsively observing the introduction of an innovative and computing paradigm that guarantees to profoundly affect the way we associate with PCs, electronic gadgets, mobile devices, cyber spaces, and associate peripherals. This new emerging technology, called ubiquitous computing, imagines a world where inserted processors, PCs, sensors, and advanced correspondences are reasonable products that are accessible all around any time. Ubiquitous computing will encompass clients with an agreeable and helpful data condition that unions physical and computational foundations into incorporated natural surroundings. This living space will include an expansion of hundreds or thousands of computing gadgets and sensors that will give new usefulness, offer specific administrations, and lift efficiency and cooperation. The current research article projects on basic computing theme on application challenges using mobile computing, emergence of fog computing and how more technical challenges were solved using IoT and ubiquitous computing from social, health care and networking point of view.

KEYWORDS

Fog Computing, Health Care, IoT, Pervasive Computing, Smart System, Ubiquitous Technology

1. INTRODUCTION

The distribution and utilization of present day Information and Communication Technology (ICT) are thought to be the preconditions today for dynamic industrial development and future expediency in worldwide challenge. In the meantime, the procedures of progress activated, empowered and celebrated by ICT are fabulous. The new advances have a consistently extending progressively outstretching influence on the economy, open organization, science, grant and private life. They apply impact on social and individual life. The improvement of versatile communication and Internet innovation amid the previous decade represents the transformative capability of ICT. Computerized data and administrations are going portable and can be called up from any area. A pattern towards ubiquitous computing is rising that is, the ubiquitous and imperceptible utilize, creation, handling, transmission and capacity of data. Regular articles are getting to be noticeably smart items, which are connected together into systems, respond to their condition, and interface with their clients. This paper explores the focal patterns in ubiquitous computing and thinks about them from specialized, financial and social points of view. It stresses the level of investigation that is situated between singular contextual analyses and the worldwide far reaching picture and that can be mapped onto the application regions of ubiquitous computing. It likewise features the possibilities of ubiquitous computing.

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2. CHALLENGES IN UBIQUITOUS COMPUTING

The promising technical trend is evolving in the form of a vast computing paradigm called ubiquitous computing governing network hold up such as user service, storage, transmission and client support. Every evolving day objects are transforming into more smarter objects with connected networks. It obviously calls attention to that extraordinary application territories and segments will profit by this possibilities at various velocities and with subjective peculiarities. What’s more, it additionally clarifies that ubiquitous computing not just stances specialized issues, it likewise includes genuine social, monetary and legal difficulties that require dynamic arrangements and administration. As has frequently been the situation with specialized developments and advances, ubiquitous computing brings up the issue of what kind of future we insect. This paper, on one hand, adds to the more prominent objectivity (Rath & Pati, 2017) toward this path. Then again, it plans to plot enough issues with the goal that a huge number of social gatherings and performers will be attracted to partake effectively in the talk on ubiquitous computing. With an idea and objective of some specific network related issues, the idea of Mobile Cloud Computing versatile distributed computing (MCC) has been proposed as a plan, where a cloud is utilized as stage to execute portable applications. MCC at its least complex alludes to a foundation where the two information stockpiling and information preparing occur outside of the cell phone (Zhang, 2017). Versatile cloud applications move the computing force and information stockpiling far from cell phone and into the cloud, which brings applications and portable computing (Rath, 2017) to not simply smart telephone clients but rather much visitor scope of versatile supporters. In such manner, to appreciate the ubiquitous computing portable endorsers need to pay central to a cloud specialist co-op, and in light of that the specialist co-op offers a few administrations that the cloud client has been bought in for those administrations.

The potential for fast and differing interconnectivity through devices using heterogeneous interchanges interfaces has empowered a genuinely ubiquitous computing environment (Stergiou, Psannis, Kim, & Gupta, 2018). Be that as it may, this has brought about similarly ubiquitous security chances due basically to the number and unpredictability of administrations being keep running over such networks. As innovation progresses towards the acknowledgment of a ubiquitous computing condition, what affect does this have on the customary data security triangle, of safeguarding the classification, respectability and accessibility of data? Furthermore, how does this impact, future data security prerequisites (Rath & Pattanayak, 2018), especially in light of dependably on business forms which require ongoing data sharing? Accentuation is set in (Stergiou, Psannis, Kim, & Gupta, 2018) on the requirement for hazard administration, and how this might be accomplished through setting-based access control components and genius dynamic danger evaluation strategies. A rising ubiquitous manufacturing is another current research area where security has very important requirement. Ubiquitous Manufacturing (UM) highlights an “outline anyplace, make anyplace, offer anyplace, and whenever” paradigm (Chen & Tsai, 2017) that stipends industrial facilities a boundless creation limit and perpetual assembling administration accessibility. In any case, the examination and utilizations of UM have been restricted up to this point to in-industrial facility activities or coordination. Study (Chen & Tsai, 2017) audits the flow practices of UM, talks about the difficulties looked by scientists and professionals, and decides potential open doors for UM soon. The accomplishment of UM relies upon the nature of the assembling administrations conveyed, and that UM is a feasible focus for Industry.

3. SECURITY FEATURE IN UBIQUITOUS COMPUTING

Ubiquitous computing has changed the way clients cooperate with innovation. Its applications are all over the place, supporting clients in ordinary exercises straightforwardly with practically zero requirement for consideration. To guarantee the selection of these applications, it is basic to survey the nature of the connection with its clients. To do that, estimations can be connected to get information about quality attributes in a software item. In a past report about quality attributes
Evolution Mechanism of Atmospheric Pollution Based on Phase Reconstruction Theory and Time Series Data
Guo-Feng Fan, Meng Han, Ya-Ting Wang and Jing-Ru Li (2017). *International Journal of Applied Evolutionary Computation* (pp. 43-52). 

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