Summary and Analysis – "The Computer for the 21ˢᵗ Century"

Computers – the "Steam Engines" of the 3ʳᵈ Industrial Revolution had gained enough popularity by the end of the 20ᵗʰ century, making it evident that they were bound to play a pivotal role in future technological innovations. Through this essay, Mark Weiser tried to imagine computing devices of the upcoming century, and how they will evolve and become an integral and indistinguishable part of human society. The article explores the idea of "ubiquitous computing". It explains how devices like tabs, pads, and boards will seamlessly diffuse into the lives of human beings rather than become a center of attention. A network of multiple such devices having locational awareness and communicating with each other will bring to life the idea of "Embodied Virtuality" and may end up bringing communities closer.

Among the various ideas and devices mentioned in the paper, the one that caught my eye was that of live boards being used to share information within and across the meeting and conference rooms and is operated using an electronic chalk. I remember doing a similar project as part of a hackathon conducted during my undergraduate program. We tried to use IBM Bluemix and Microsoft Azure APIs to create a digital board tablet application that could stream across various classrooms and operated using a stylus pen. It is interesting to know that similar ideas had been floated around as early as the 1990s and yet work on these technologies and their applications were quite limited. Need is the mother of all inventions, however, and the development and use of such devices has snowballed recently (especially post COVID-19) owing to the need for distance education, remote work, and virtual classes.

Another noteworthy section of the article is where the author portrays a beautiful picture of Sal – a woman of the 21ˢᵗ century surrounded by these all-pervading yet shrouded computing devices which have become an intimate part of her life and of society. The author talks about biographical information that Mary shares with Sal which helps them connect. An earlier section, mentions devices that were aware of where they were. Both these technologies are in extensive use in today's world albeit in slightly different forms – as GPS systems and social media. They empower huge businesses like Facebook, Zomato, Uber, etc., and generate massive amounts of data. Yet, the combined potential of both these technologies to create a more interconnected world has yet to reach its full potential in my humble opinion.

While explaining the fairytale story of Sal, the author talks about privacy issues as a cause of potential concern. However, he fails to consider some other challenges that these miniature devices that enable ubiquitous computing could create. Two of these challenges are – E-Waste and Radiation. A large number of devices would generate huge amounts of e-Waste which must be managed and disposed off safely. Also, being surrounded by these devices constantly will expose us (especially children) to the harmful effects of radiation and may have an adverse impact on our long-term health. These issues that the article fails to highlight are real challenges that we face in the 21ˢᵗ century, especially with the proliferation

of IoT (Internet-of-Things) devices. A thorough read of the article gives us this very lesson that while it is useful and inspiring to envision what shape technology will take in the times ahead, it is also our responsibility to identify the challenges associated with it as early as possible to ensure a sustainable future.

References:

1. M. Weiser, "The computer for the 21st century", *IEEE pervasive computing*, vol. 1, no. 1, pp. 19-25, 2002.