CE101 Précis Assignment

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Article Used: 5 (Handheld Computers)

Contents:

1. The Précis (1550 words)

2. The Reflective Statement (520 words)

Précis

Article Structure and Contents

The article I will be reviewing is on ‘Handheld Computers’ but in the literal sense is talking about today’s smartphones with the ability to function as well as computers and in some cases, specialised pieces of equipment, but in a more portable format. In addition to out preforming computers, the article will explore the technology behind smartphones, and how this technology can be uses in all sorts of different aspects of society from helping you get to work to saving people’s lives. Finally will be demonstrated how smartphones are helping bridge the virtual and physical world together through applications and an increasingly wireless world.

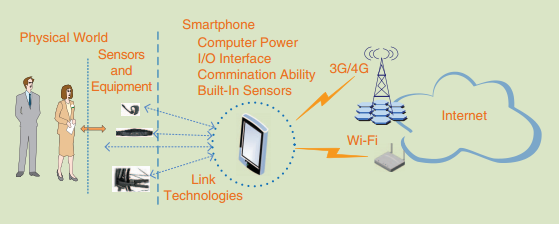
The first few paragraphs explain to the reader that the world has become heavily reliant on our smartphones for more than just making calls and text, which we have, and gave some sourced statistics such as “there are already more than 1.08 billion smartphones around the world” [1] and “Google’s Android mobile operating system and Apple’s iOS hold more than 93% of the market scheme”[2]. The main points here were explaining to the reader just how prevalent phones are in the modern world and explaining how this field is dominated by two leading brands.

We then move onto how smartphones have gained this term of being ‘Handheld Computers’ where the writers begin to discuss hardware and its performance. Processors in phones now usually have multiple cores, allowing them to process operations and calculations quicker and allow a heavier load. In addition to this, some phones now even come with dedicated graphics chips allowing higher resolution screens and games to be run with ease, allowing the CPU is process more with graphics loads being on a dedicated chip. The article then proceeds to discuss various sensors such as: compasses, gyroscopes, cameras and GPS and how these allow phones to become rich with data and how this allows phones to develop further with applications developed around these commonly seen features.

Networking and applications were a key part of this particular part of the article since it helped readers understand what the phones capability challenged and exceeded that of what a computer could do. It was mentioned that phones have several different ways to connect to networks, such as standard Wi-Fi, NFC, Bluetooth and 3/4G allowing phones to provide connectivity and be able to connect almost anywhere with anything. Moreover, the second challenge to the computer and what I think is one of the more substantial points is the fact that many traditionally computer exclusive applications such as Skype, Microsoft Word, YouTube and Google Chrome to name a few, can all be found on smartphones today with the added benefit that these applications are in fact better on phones for the average consumer/everyday user because of its small carry size and cheaper cost. The last point the article mentions is how the smartphone can use some of the implemented sensors to better affect than the computer. An example of this would be the GPS sensor since a smartphone can use applications such as Google Maps with connection to the internet through 3/4G it’s possible to use functions to detect real time traffic and find a route to avoid it.

“Smartphone-Centric Applications” Figure 1[3] is the term used that composes the majority of the remaining article, the principle of it being depicted by figure 1. Essentially the smartphone is a middleman connecting the physical world and virtual world together using applications. The information gathered from these applications is then sent to the phone via wired and wireless technology such as Bluetooth which is then processed by the phone. Some of this data, depending on the application, is then relayed further onto a cloud server where it will be stored and possibly accessed at a later date by other users.

Figure 1 [3]



The rest of the article continues to use this “Smartphone-Centric Applications” example but with various more specialised services of which I will give a very brief overview with the main points of the following:

Noise Pollution Monitoring: This method utilises the use of inbuilt microphones in phones exposed to noise levels which can be used to map noise levels of that area. Noise levels are assessed on the phone before being sent to a central server. This server receiving a multitude of different sound readings from different users around an urban area can then be used as data for the government or the public.

Health-Care Monitoring: Smartphones play an important role in the monitoring of patients anywhere, anytime with remote health monitoring, basically allowing for earlier diagnosis and treatment for people who need long-term attention. One such system called UPHSM (ubiquitous personal health surveillance and management system) have sensory equipment attached to a patient’s body that uses a middleman that isn’t the phone, in this case it was called ZigBee, and the phone transmits data to ZigBee which is then sent to a health database via Wi-Fi or mobile data. If the patient begins to show sign of declining health, a message will be sent to emergency services with a GPS location to be dispatched for medical treatment.

Traffic Conditions Monitoring: This section focuses on the use of a system named VTrack [4] which uses GPS and Wi-Fi to report user’s current position to a server. The server then uses this data to relay back to the user real-time estimates of travel time using an algorithm that sorts noisy positions to identify heavily congested areas, giving drivers regular updates on the quietest routes.

Another system unique to the Windows OS called Nericell [5] that uses GPS, accelerometer sensors and microphones to detect road surface irregularities and traffic conditions, all of which is transferred to a server for assessment and once cleared is open to the public to view.

Sports and Fitness Monitoring: Out of all the “Smartphone-Centric Applications” this is most likely the most prominently used feature in people’s lives. There are a number of applications dedicated to improving user’s health, most of them using GPS or motion action. This allows the recording of jogging/running routes, steps taken or heartrate. Data can then be processed on the application to improve workout routines and dietary advice.

Earthquake Monitoring: Earthquake monitoring utilises the use of sensor equipped mobile devices to record seismic activity with the help of software (iShake) [6] and GPS. iShake [6] is a back-end server with the capability to interact directly to a server to relay seismic activity, the initial data being stored on said back-end server. When ground activity is sensed the raw data will be streamed from the client to a back-end server where it is combined with other client data, which is then further relayed onto emergency services.

Air Pollution Monitoring: Air pollution monitoring is done through peripherals in the form of a pollution sensor since there are no inbuilt gas sensors in smartphones. Like noise pollution monitoring, data of various gasses such as CO2, carbon monoxide etc are GPS co-ordinate recorded and sent to a server via Bluetooth to create air pollution maps. The less sophisticated peripherals the phone uses to record data however means that data readings are less accurate than those used by meteorological stations for example, but make up for less accurate data with portability.

Methods to Connect to Smartphones: This section of the article explains to the reader how smartphones are becoming even more so connected to physical and virtual worlds. NFC is a good example of this in that you can swipe your phone over a credit card reader to pay for an item, much like swiping a card. Though typically data transmissions between peripherals and smartphones is plug one into the other, but this is typically perceived as cumbersome and inefficient which is why the world is moving more toward Wireless Wi-Fi and Bluetooth allowing for low power, high speed wireless transmissions that are continuously being improved.

Future Trends: In the final closing paragraph the article basically closes of saying smartphones will become ever more so interactive with more sensors, communication methods and tools to aid users in everyday life. However not all sensors will have a physical integration with a smartphone either due to the practicality of it, size or cost. For example the smartwatch that needs to be attached to the body to better access body conditions. None the less, new wireless technologies will be developed and integrated for such sensors further connecting the physical and virtual world.

My Conclusions

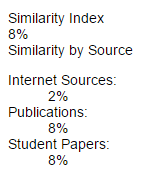
In conclusion, I feel like the main points demonstrated from this article are well articulated and backed up with evidence. Points such as how phones are becoming more of a necessity to consumers for more than just calls and texts are well solidified with how phones have evolved to become powerful pieces of technology featuring cameras, various sensors and applications only previously found on computers.

Smartphone-Centric Applications, while fitting a niche sector, also demonstrated how the portability and connectivity of a phone allows to take, receive and present data to an array of sectors of society more effectively than a computer and in certain cases, specialised equipment.

Future trends will continue to make smartphones an ever more needed part of our lives, providing more features and connectivity to both physical and virtual worlds and thus having more data and information collected and accessible to us.

Reflective Statement

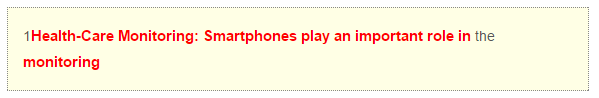
Overall, I believe I have a good understanding of plagiarism and can read, understand and write something in my own words. According to Turnitin, my work scored an 8% on similarities to other works, and though the majority of it was because of sources, there were 4 notable sections where my work was similar to someone else’s. I would say 1 of them was unavoidable, as I tried to define an acronym (UPHSM) but in hindsight I should have sourced this material. The other 3 were general terminology used in a certain section, for example “attached to a patient’s body” was flagged, and like the other terms, looking back now I should have tried to think of another way to express the same thing, even though what I did was unintentional plagiarism is unacceptable. “Health-Care Monitoring: Smartphones play an important role in the monitoring…” is the flagged piece text I am most ashamed of allowing myself to use, as it is a blatant piece of plagiarism, though at the time I didn’t realise this. To stop this from happening again I will use a technique of alternate reading of paragraphs from the source material to what I’ve written to spot texts that are copies such as the ones above.



Going into this assignment I felt very confident in my ability to source, reflect and avoid plagiarism, since during my 2 years at college, I’ve had to write many ‘proformas’ which require sources and a reflection at the end and so it’s much like a precis, though a precis I believe delves into deeper detail. Though after the Turnitin result, it’s shown me I have to scrutinise my choice of words to greater detail, and be extra careful when referencing and sourcing text. Therefore I will now take greater time in thinking about what I am writing in reference to the source material, and will try not to get carried away with typing, in an attempt to reduce the change I will repeat what happened in the first paragraph with similar phrases.

From this I feel like I need to develop more key skills in an attempt to take my 8% down to 0%. Understanding what is written is key to formulating your own words and interpreting that down on paper, as said in different words, but with the same meaning as originally written. Once finished with the Precis, I think it would be good practise to read the entire original paper again alongside what you have written, alternating between paragraphs rather than just proof reading your own work. This will allow for the reader to find any discrepancies in their own work, while also finding similarities between their work and the original article.

In conclusion, overall I am happy with my understanding with plagiarism and my ability to read, write and source material, though I am disappointed to say that my precis doesn’t reflect as well as I had hoped in this statement. Though from these mistakes, I feel like I have a technique that can help future proof my work from obvious plagiarism such as texts mentioned in the first paragraph.



Sources

[1] (2013, Sept. 20). Smartphone. [Online]. Available: http:// en.wikipedia.org/wiki/Smartphone / Handheld computers.pdf

[2] B. Martínez-Pérez, I. de la Torre-Díez, and M. López-Coronado, “Mobile health applications for the most prevalent conditions by the world health organization: Review and analysis,” J. Med. Internet Res., vol. 15, no. 6, p. e120, 2013 / Handheld computers.pdf

[3] Image sourced from Handheld computers.pdf

[4] A. Thiagarajan, L. Ravindranath, K. LaCurts, S. Madden, H. Balakrishnan, S. Toledo, and J. Eriksson, “VTrack: Accurate, energyaware road traffic delay estimation using mobile phones,” in Proc. 7th ACM Conf. Embedded Networked Sensor Systems, 2009, pp. 85–98 / Handheld computers.pdf

[5] P. Mohan, V. N. Padmanabhan, and R. Ramjee, “Nericell: Rich monitoring of road and traffic conditions using mobile smartphones,” in Proc. 6th ACM Conf. Embedded Network Sensor Systems, 2008, pp. 323–336 / Handheld computers.pdf

[6] J. Reilly, S. Dashti, M. Ervasti, J. D. Bray, S. D. Glaser, and A. M. Bayen, “Mobile phones as seismologic sensors: Automating data extraction for the iShake system,” IEEE Trans. Autom. Sci. Eng., vol. 10, no. 2, pp. 242–251, 2013 / Handheld computers.pdf