Distraction-Free Apps

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**I: Executive Summary**

This paper studies and analyzes various disruptive technology that have impacted the world of software engineering in the past few years. The purpose of it is to support a software method to alleviate disruptive technology by replacing it with new technology for improving the health of our society’s current method of working.

**II: Introduction**

Humans are adapted for a very wide field of sensory perception. They see with their eyes, smell with their nose, hear with their ears, taste with their tongue, and feel with their skin and anywhere else inside their bodies their nervous systems are connected to. They can also perceive entire events with all senses combined. These sensory stimuli lead to an immense amount of preceptory information the brain and/or mind must go through whether they want or not.

Civilization, and thence the information age, has exponentially raised the amount of sensory stimuli humans are susceptible to. The increased stimuli are primarily in affecting the eyes through signs indicating rules and procedures, advertisements, evermore so complicated vehicularization, several modes of new communication through technology, and simply the vastness of product particularities for consumption, use, or just novelty. The nose also experiences more as foods from all over the word are readily available and often profusely obvious from restaurant exhaust. Ears too are constantly bombarded by novel and abrasively usual sounds, yet as well music of all styles are everywhere without someone even using their own device to produce it.

The increase in stimuli has brought upon humans detrimental distraction. Distractions can be as simple as causing loss in communication to loss in pervasive information, such as tripping hazards or automobile warnings, or even as simple as misplacing personal items or becoming lost in the web of the world wide web. Paradoxically, much of the new stimuli are what distracts from other new stimuli, such two as vehicle drivers watching traffic signs ending up in an accident. However, this is more based on human error in the grand scheme of required living in current society, and therefore more so unavoidable.

There are ways to prevent human distraction from the ways in which technology does so, ultimately avoiding disruptive outcomes. It can take just one ringtone to disrupt a classroom and therefore a student’s college grade, though again, this is more so user error. So true prevention of possible technological mishap must come from its design so that the human senses are not overwhelmed and can take practical action in modern society. As technology is constantly advancing, it is necessary to survey what portion of it can be changed and/or developed and its impact.

**III: Impact of Past Disruptive Technologies**

Since the beginning of time, we have witnessed the emergence of new technological ideas that have changed the world as we know it. It might have started off with the invention of the wheel or fire during the earlier years of life, but today, we can attribute that same kind of life-changing event to inventions such as the internet or smartphone.

The internet is not a tangible item that can be declared as being developed at a certain time. More or less, this piece of technology was able to create its impact over the course of many years. In 1957, the technology was first brought up through the organization called the Advanced Research Projects Agency, and over the course of time, a multitude of scientists added their own various input to develop an intangible object that will allow for a wireless flow of information (Cohen-Almagor 21011). Initially though, the extent of this technology was only to be available for American University Students so that they can create a strategic communication network. Over time, the scope of the project started to increase and eventually lead up to a global phenomenon.

By 1984, the technology had formed but was not readily available to the society. Over the next five years, the emergence of more developed software and the increase of interconnected networks, allowed for the internet to finally become a transparent invention for the society to view as a reality. It was finally in the 1990s that the U.S. Department of Commerce decided to release control and privatize this historical invention. Today, the invention of the internet has allowed us to share information internationally. During the beginning of its commercial era, approximately 5,000 users had access to it. By the mid-1990s, the amount of internet users had increased to 40 million, and today it is over 4.5 billion (Castells 2013).

Many factors play into the success rate of this invention, such as lack of isolation, inexpensive cost, and easy access. As the public began receiving aid through the internet in their daily life by ‘Google-ing’ quick questions, directions, or communicating, we have slowly begun to see a shift; as a result, our society has become dependent. Today, people can use the internet for social media and make sure that they stay connected with people regardless of distance. The impact of such an invention is undeniable, as now people can do what they want away from others, but still feel connected emotionally. Even internet access has become quick and easy, as children from a young age are allowed to surf the web on school or library computers/laptops for free.

The same can now be seen of smartphones. In the past, we have had many archaic devices for the purpose of communicating with others. But the emergence of smartphones in the mid-1990s was a game-changer by IBM (Andrew 2018). However, due to its price, availability and awareness, these phones did not receive recognition until the 2000s, especially when Apple launched its iPhones. With the establishment of smartphones, there are two rivals: Androids and iPhones.

All in all, the impact of smartphones did not stop at better communication, but also, access to wireless internet, camera quality, extended battery life, unlimited games, social media, GPS and more. Due to the compact nature and multi-feature nature of this device, we have over 3.5 billion smartphone users today (Andrew 2018). These phones are not only used by civilians for personal use, but have been utilized by various industries as well, such as banking, hospitals, public works, gaming, etc. Today, if stores and restaurants want to appeal to their consumers, they must be able to market and allow easier access by creating customized phone applications and broadcasting using social media platforms. To target the entire smartphone market, developers must work hard to manage these software on both Androids and iPhones.

The internet and smartphones are examples of disruptive technologies that might have taken the world by storm in the past, but they are still being refined until this day. It is their existence that changed the world as we know it and have deemed it impossible for us to remove this technology from our midst. Now, we are allowed to multi-task and finish those tasks within seconds. As a result, this disruptive technology not only is the best but also the most apprehensive thing to have happened to the world. With it, life is perfect; without it, we might not know how to survive. In short, we cannot go back anymore, and must continue to improve upon our current disruptive technologies, or else become susceptible to something more disruptive.

**IV: Current & Future Disruptive Technologies**

Throughout the years disruptive technologies have consistently emerged, enhancing the way the human race functions. These technologies have shown to be both beneficial and harmful, especially in today’s world when looking at artificial intelligence and robotics.

***Artificial Intelligence***

The first concepts of artificial intelligence arose in the first half of the 20th century where science fiction depicted artificially intelligent robots such as the Tin Man from the *Wizard of Oz*. By the 1950’s, the world had a generation of scientists, mathematicians, and philosophers that had grasped the concept of artificial intelligence (Anyoha 2017). The framework of artificial intelligence can be tied to Alan Turing, a British logician and computer pioneer. He was able to describe the idea of a stored-program concept in which the machine it was operating on could continue modifying itself, improving its own program (Copeland). A few years later in 1956, the first artificial intelligence program was presented at the Dartmouth Summer Research Project on Artificial Intelligence. The program was called Logic Theorist, which was designed to mimic the problem-solving skills of the human brain (Anyoha 2017). As the years went on, artificial intelligence continued to advance as computers became faster, cheaper, and more accessible to all. It is estimated that the memory capacity and speed of computers doubles every year.

Contrary to popular belief, the depiction of large hulking robots and artificial intelligence as shown in films such as with the Transformers or the Terminator are quite far from where we are today. Today most of our artificial intelligence is hidden deep in the complex workings of our devices or even invisible devices and digital interactions (Smith & Anderson 2010). Voice-based digital assistants such as Apple Siri, Amazon Alexa, and Google Assistant are becoming quite common among the people as smartphones and wearable technology are being used handsfree via speech. A survey conducted by 451 research indicated that voice UI’s and digital assistants are among the most disruptive technologies for enterprises today (Finnegan 2020). Voice AI is primarily used right now for simple tasks such as starting a phone call, answering messages, setting reminders and scheduling events on personal calendars. However, software vendors such as Microsoft are enabling voice AI to be tailored to the workplace rather than just the at home user. As a wider range of voice technology on productivity applications and devices become available, the adoption of voice technology will increase exponentially both in the workplace and at home potentially erasing the need of personal assistants.

***Robotics***

The autonomous vehicle technology that is equipping self-driving cars, is quickly developing and reaching maturity. Before long, the first fully autonomous cars will be operating on public roads alongside human drivers in non-autonomous vehicles. In order to examine the impact of self-driving cars and autonomous vehicle technology, we must demonstrate how this technology has the potential to disrupt the auto industry. (Hars 2015)

The capability of driving without human presence and supervision releases vehicles from the need for a human driver. This capability will allow services such as Uber and Lyft to operate without the need for a human driver; the car will appear quickly, drive the passenger to their destination, and the vehicle will then be available for the next passenger to use. Eliminating the driver reduces costs for the user and eliminates safety concerns from interactions with an unknown person. (Hars 2015)

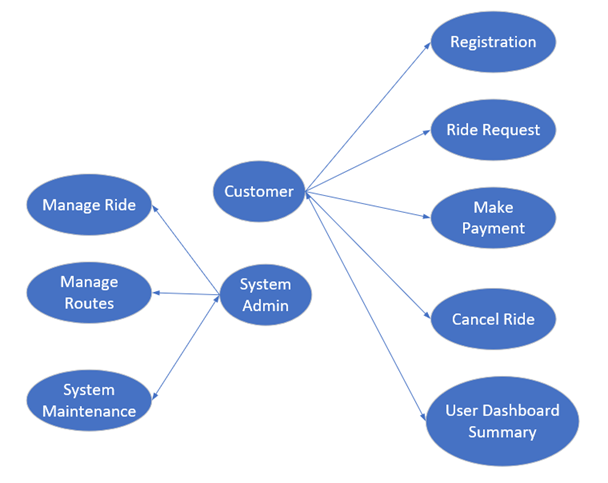
Many stakeholders are concerned about how autonomous vehicles will alter future travel demands from consumers, and alter the need for roads, parking facilities, and public transit services. Concerns also surface regarding what public policies can minimize the problems and maximize the benefits of these new technologies. (Litman 2020)

Many experts predict that by 2030, autonomous vehicles will be both reliable and affordable and will be so common that they will displace most human driving. This, of course, would provide huge savings and benefits for consumers. However, experts also state that there are many good reasons to be skeptical. We can see historically how disruptive technologies such as digital cameras, smartphones, and personal computers impacted the market and many of the current optimists tend to ignore significant obstacles to autonomous vehicle development and tend to exaggerate future benefits. (Litman 2020)

**V: Idea & Design for a Future Disruptive Technology**

We propose to develop a mobile app prototype which will enable customers to request for self-driving taxi rides using virtual assistance and make the payment using bitcoin. Figure 1 below indicates this process of which will minimize transportation costs and hidden financial charges.

Figure 1: Self-driving transportation transaction app

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**Overview**

This tool will allow users to easily and efficiently request transportation of a self-driving car. Unlike services such as Uber and Lyft, self-driving cars allow for a decrease in human error when driving and also allow rides to be selected without bias. The introduction of bitcoin will also allow users more discretion, elimination of banking fees, increased security and more mobility.

Table 1: Use-Case Overview

|  |  |
| --- | --- |
| **Actors** | **Use-Cases** |
| Customers | Responsible for registering with the app, maintaining profile, and use various services provided by the app   * Registration * Ride Booking * Make Payment * Cancel Ride * User Dashboard Summary |
| System Admin | Responsible for maintaining system resources and new/existing ride routes.   * Manage Ride * Manage Routes * System Maintenance |

**Use-Case #1 User Registration**

User will need to input personal identifiable information

Pre Condition

User must download Application to a mobile device prior to setup.

Normal Flow of Events

● User downloads app to mobile device

● User registers in app and agrees to terms and conditions

● User Inputs transaction information

● User configures Virtual Voice Assistant

**Use-Case #2 User’s Ride Request**

An app will be created to recognize voice (VVA) of customer by interacting with the software for requesting transportation.

Pre Condition

The customer must be registered into the system prior to request

Normal Flow of Events

● User gives voice command via given script for testing

● A query will be fired to the database

● Results (output) will populate on user’s mobile device

● A selection will be made by the user to accept/decline ride

● The vehicle software will communicate with mobile device showingaap/navigation/location of vehicle/expected arrival time/cost of ride

**Use-Case #3 : Enterprise Data Warehouse**

An enterprise database management system must be created to capture, store, and transmit data to assigned objects.

Pre Condition

Table data must pre-exist, business objects documented (Data Dictionary), storage requirements must be met, Operations support in place and ready

Normal Flow of Events

● Table/Back-End Objects development

● App/Front-End Objects development

● Mapping Requirements

● Technical Specifications

● Data Dictionary Updates

● Peer Reviews

● Dev [Unit Testing/Test [System Testing]/Prod Environment [Validations]

● Operations Process Chain/Support

**VI: ACKNOWLEDGEMENT**

The self-driving car application will alleviate problematic distraction with the careful balance of newly developed technology. Ironically, users will need to embrace technology even more so in order to free themselves of harmful technological distractions, but the benefits outweigh the costs. However, in that driving cars at freeway speeds require the same or more so embrace of technology, the self-driving car application is a pragmatic approach to using technology ideally.

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