MY SOFTWARE DEVELOPMENT INTERNSHIP EXPERIENCE AT THE UNIVERSITY OF VIRGINIA DEVELOPMENT HUB

IMPACT OF THE INTERNET AND MOBILE DEVICES ON YOUTH AND THEIR DEVELOPMENT

A Thesis Prospectus
In STS 4500
Presented to
The Faculty of the
School of Engineering and Applied Science
University of Virginia
In Partial Fulfillment of the Requirements for the Degree
Bachelor of Science in Computer Science

By
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October 27, 2022

On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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As a student at the University of Virginia, I got a chance to participate in the Internship Placement Program which allows students to experience a real-world internship. At the same time, I was always interested in investigating how social media affects our society and the development of the younger generation.

A significant problem of modern computer science education is its connection to the real-world job market. According to Minnes (2021), CS graduates preparing to join industry may confront differences between their academic experience and industry expectations. Moreover, Zehr (2020) states in her work that the researchers found that students did not look for connections between the classroom and the workplace, making it difficult to apply skills from one setting to the other. Even though there is a huge demand for software engineers and computer scientists, a certain number of computer science graduates cannot find jobs immediately after college. Sometimes it takes them a few months, or, in some cases, they even must take part in boot camps or software development programs. At the same time, according to Bourelle (2012), students who intern receive more job opportunities (p. 3). Consequently, my technical project will conduct an analysis of two semesters of my software development internship experience at the University of Virginia Development Hub. It will help to determine how to prepare for the modern IT job market and what skills are essential. Lapan (2022) states in her work that for students in engineering and computing, internships provide important career socialization experiences, including access to new technical skills, a professional network, and the opportunity to try out an occupation. Moreover, Phillips (2021) states in his work that for many, summer internships become the launching pad of a promising career (p. 19).

Modern society is extremely reliant on mobile devices and computers. According to Dr. Sim (2019), 81% of North American adults own a smartphone. At the same time, youth is not an

exception, and they also use mobile devices and technology at very high rates. In her article, Lauricella (2014) states that 66% of children use mobile devices. Consequently, in my STS project, I want to investigate how mobile devices and computers are being used and the effects they have on youth. From my experience, these technologies might have a negative impact on the mental health of youth. My personal experience is also supported by ongoing research. According to Olweus (2018) in his paper on the issues of cyberbullying research, he states that some studies report over 50% of students experience cyberbullying. Even though the definition and criteria of cyberbullying are still not universal, it is still clear that mobile devices and the internet create a completely new medium that might have unpredictable effects on the youth. At the same time, Ferguson (2021) states that despite overall decrease in bullying and aggression, the experiencing of aggression online is fairly common. Additionally, according to Lapan (2022), a recent large national survey of 1588 middle school youth, ages 10-15, found that 32% had experienced online harassment. As a result, in my STS project, I would like to investigate and summarize both the negative and positive effects of using mobile devices and computers by youth.

A topic for a technical project is “My software Development Internship at the University of Virginia Development Hub” and my topic for the STS project is “Impact of the Internet and Mobile Devices on Youth and their Development.” These two topics are related because my technical project summarizes my internship experience and skills that I was able to obtain in order to conduct my STS research.

Figure 1 is the Gantt chart that indicates when the work will be delivered for both STS and Technical Projects:

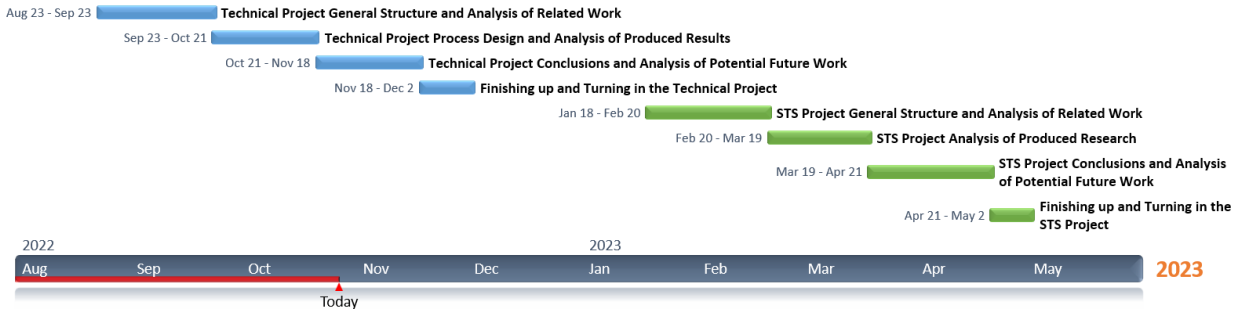

Figure 1: Gantt Chart of work timeline: depicts when and what parts of STS and Technical projects will be done (Serhii Maltsev 2022).

MY SOFTWARE DEVELOPMENT INTERNSHIP EXPERIENCE AT THE UNIVERSITY OF VIRGINIA DEVELOPMENT HUB

Computer science education programs must change every few years to keep up with the pace of the modern job market. The modern software development market is extremely big. For example, according to Nagappan (2016), there are more than 1.5 million mobile apps in the centralized marketplace for IOS and Android. In addition to being extremely big, the modern Computer Science job market is also rapidly changing every year.

Internships can serve as a reliable experience that can provide information regarding what set of skills is necessary for the job in the modern software development industry. As a result, I would like to investigate how my education at the University of Virginia prepared me for my internship and what skills were needed to succeed. My experience will be helpful for students trying to get prepared for their first internship and for members of the academic community who want to investigate the correlation between computer science education and the job market. Moreover, my experience can help to get information on what changes must take place in the next iteration of the changes in computer science college education programs. The main objective of this project is to come up with a list of technologies that I had to use in my

internship experience. An additional objective is to come up with a list of UVA classes that helped me to prepare for my internship experience.

The main approach that I am going to take in this project is to analyze the two projects that I worked on during my internship at the University of Virginia Development Hub. Both projects were intended to give UVA students a chance to work on real-world software projects and to benefit the UVA community. My first project was a Discord bot for the University of Virginia Buses System that allowed students to keep track of the buses and to get notified when their bus was approaching the bus stop. Figure 2 shows an example of commands that this discord bot was able to perform. My second project was a Cryptocurrency calculator for the UVA community that was intended to help convert crypto and to provide all information about the rapidly changing world of cryptocurrency. Both projects required a big set of knowledge and technologies. As a result, in my technical project, I will break down each of the projects and come up with a list of technologies and classes that helped me to succeed in my internship.

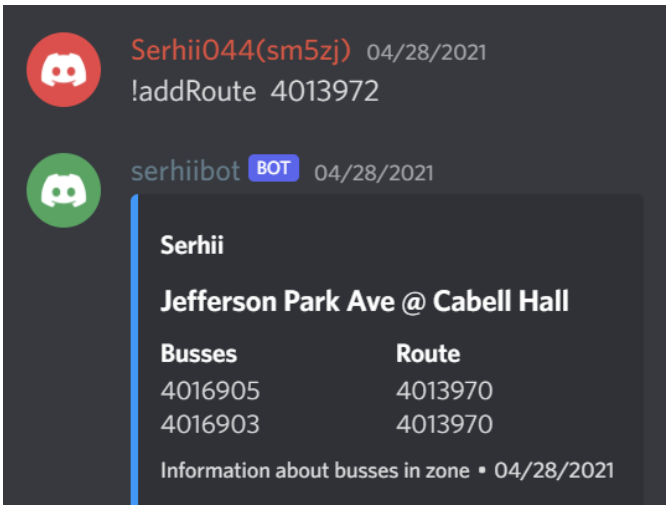

Figure 2: Discord bot: this image illustrates an example of commands that UVA buses system Discord bot can perform (Serhii Maltsev 2022).

To conduct this technical project, I do not require any extra resources. The internship experience that I am going to describe in my paper has already happened and I do not need any additional resources or equipment to conduct my analysis.

As a result, of my analysis, I anticipate coming up with a complete list of technologies and skills that I used in my internship experience. Additionally, I am hoping to come up with a list of classes at the University of Virginia that significantly helped me in my internship.

As a result of my work, I am hoping to produce a scholarly article that will serve as a source of useful information for further research.

IMPACT OF THE INTERNET AND MOBILE DEVICES ON YOUTH AND THEIR DEVELOPMENT

Modern society is extremely affected by computerization and the widespread use of mobile devices. Figure 3 illustrates that the number of internet users is growing rapidly every year.

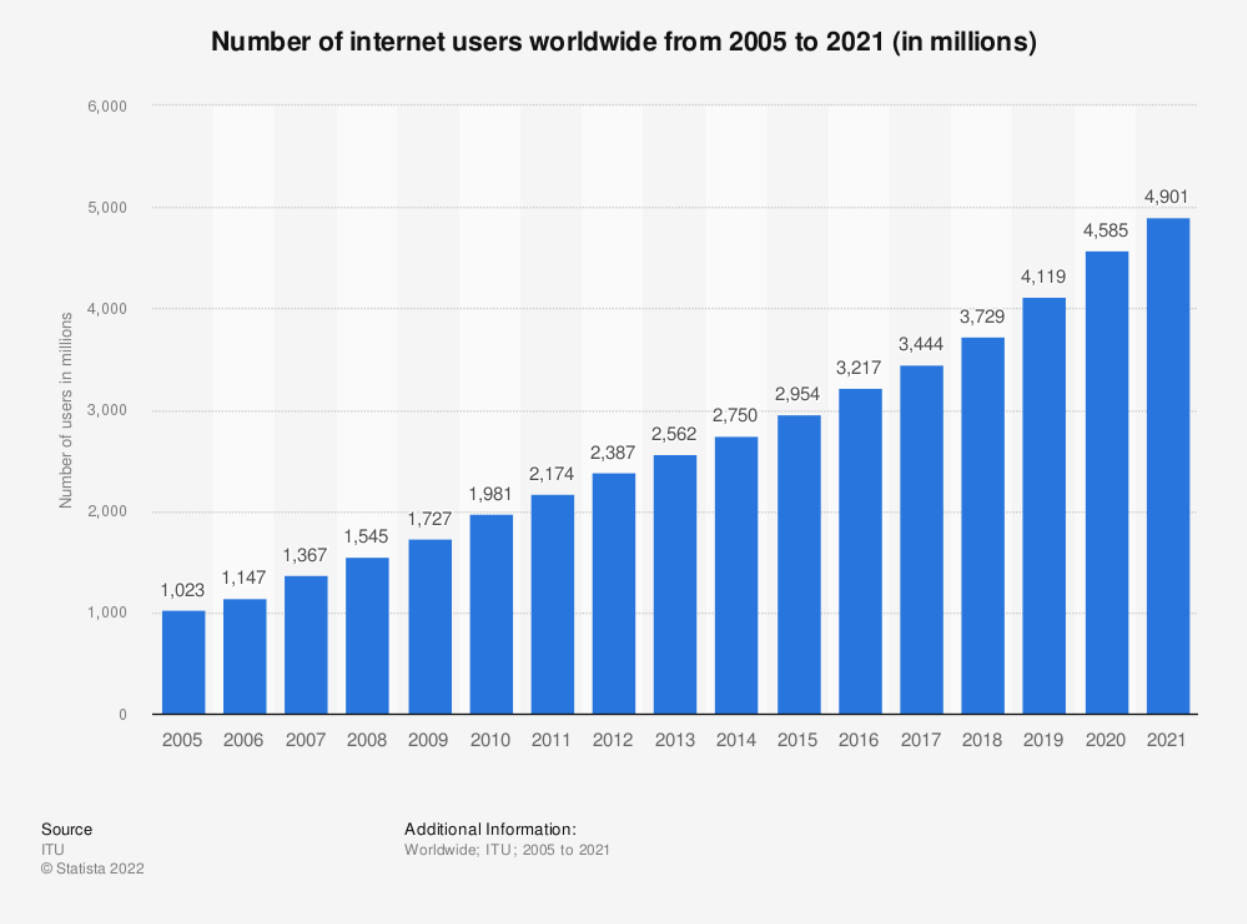

Figure 3: Number of internet users worldwide from 2005 to 2021: shows the number of internet users by year from 2005 to 2021 (Statista 2022).

Consequently, youth also use mobile devices and the internet at very high rates. However, the use of mobile devices and the internet by the youth might be worth even more attention. According to Cinger (2022), social media use at younger ages may have a greater overall impact on the trajectory of youth's self-esteem. There are significant differences between the effects of

mobile devices and the internet on the mental health of young people and adults. For instance, Richards (2015) in her work provides a quote by psychology professor Rosen who also cited studies from which he concluded that there is a correlation between depression in children and the amount of time they spend on various forms of media and technology. This problem requires more research because current young generation was the first to experience widespread use of mobile devices and it is already possible to see that it has significant effects on the development of youth. Consequently, it is essential to further investigate this issue to potentially come up with better regulations and laws that can improve the situation. Additionally, this issue requires constant investigation because modern young people are the first generation that was exposed to mobile devices and the internet at a very young age. Figure 4 illustrates what percentage of children own cell phones by age in 2015, 2019, and 2021.

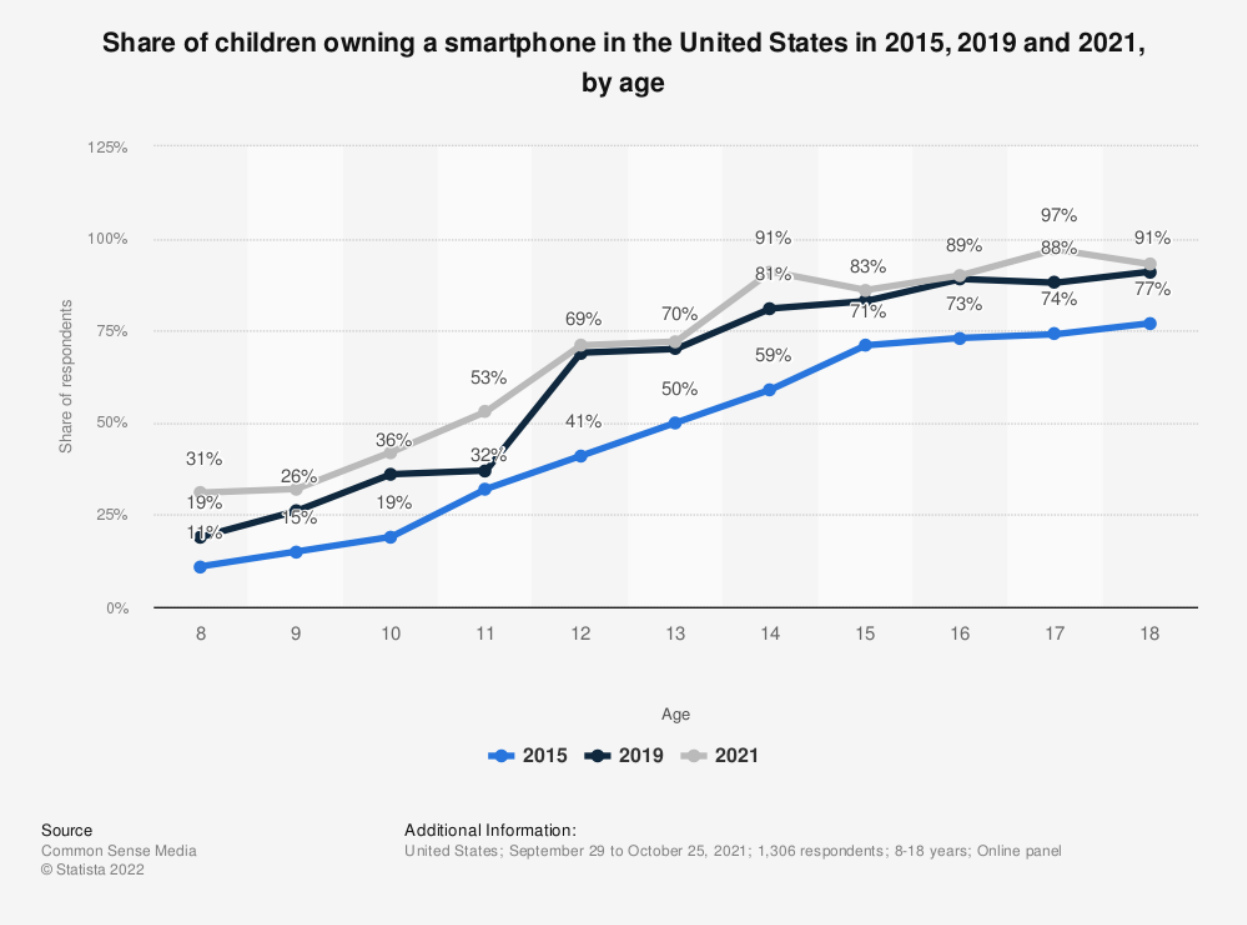

Figure 4: Share of children owning a smartphone in the United States in 2015, 2019 and 2021, by age: shows what percent of children own a cellphone by age in 2015, 2019, 2021 (Statista 2022).

Therefore, in many cases, it is possible to observe the effects of those technologies only now when that generation is entering the workforce and can make their own decisions regarding their lives.

The main objective of this STS project is to investigate how the use of mobile devices and the internet affects youth and children and what consequences it has on their development. This research will cover the study and analysis of other scientific findings and papers to maintain a solid understanding of the current state of the problem and its significance. By comparing different sources, it will be possible to draw a conclusion about what aspects of the internet and mobile devices affect youth the most and cause the most harm. By identifying those factors, it

will become easy to produce a set of problems that have to be addressed with the help of potential laws and regulations in the future.

In this research, an Actor-Network Theory (Williams-Jones, 2003, p. 3) approach will be used since it might provide interesting insight and better explain the effect of social media on the youth. In particular, ANT will help to define all actors and actants in order to better understand the possible cause of the negative effect of mobile technologies on the youth and their development. Figure 5 illustrates relationships between the users, mobile devices, and the internet.

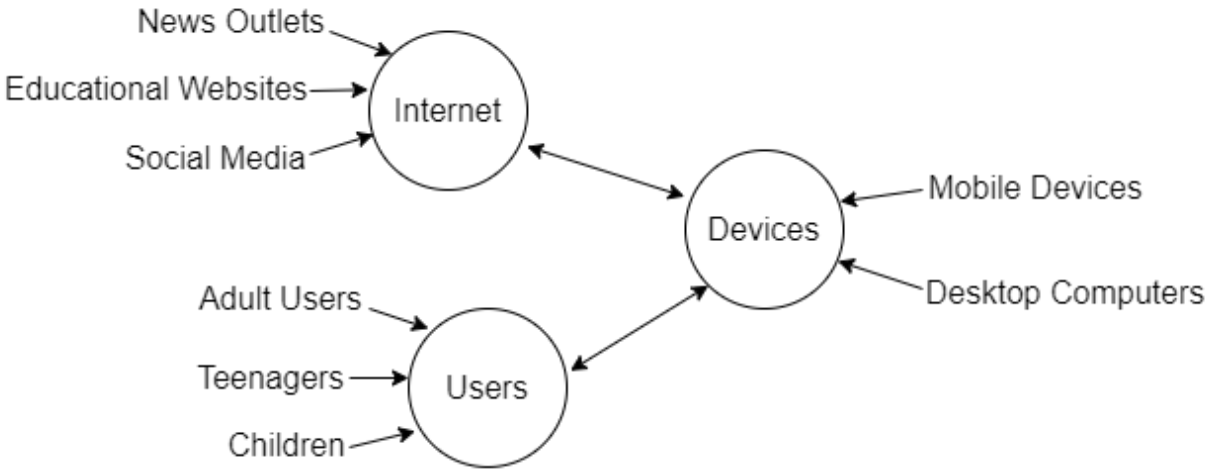

Figure 5: illustration of ANT model of the internet accessed using mobile devices: shows relationships between all actors in the ANT model of the internet access using mobile devices (Serhii Maltsev, 2022).

According to the diagram of the ANT model, there are many actors and each one of them might play a role in the negative influence of the youth using mobile devices to access the internet.

It is anticipated that this research will help to identify what aspects of the use of mobile devices and the internet by youth lead to what outcomes and effects on their development. In particular, it is expected to find a correlation between the use of mobile devices and the internet by different groups of young people and the negative and positive effects of the use.

It expected that during this work will be produced a scholarly article that to some extent will serve as an update on the current state of the research regarding the internet and mobile devices use by the youth. The number of mobile devices and internet users is rapidly growing every year. The first generation of young people that were exposed to mobile devices and the internet is gradually approaching the age when they have to enter the job market and make adult decisions regarding their lives. Consequently, it will be helpful to analyze the current generation and their relationship with mobile devices and the internet in order to produce the best laws and regulations in the future that will dimmish all the negative effects. Additionally, it is essential to conduct this research at this moment in time because we already can observe some negative effects of the use of mobile devices and the internet by young people.

POTENTIAL OUTCOMES OF PROJECTS AND THEIR APPLICATIONS

As a result of my STS project, I anticipate getting a better understanding of the effect of the use of mobile devices and the internet on the development of youth. The summary of this information can serve as a reliable basis for future research and can help to produce better laws and regulations regarding the use of mobile devices and the internet by the youth.

At the same time, I hope that my technical project will help to understand the relationship between computer science education and the job market. In case the typical Computer Science curriculum covers all the technologies and skills required by modern computer science internships, I will try to come up with a list of advice that can benefit future interns. However, if the list of requirements is not covered by the materials taught in classes, I will produce a list of technologies and skills that are essential for modern internships.

To sum up, I would like to say that my both STS and technical projects have the potential to produce some useful data and to be used as a source of information for future research in both fields.

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