

**Smart Charlottesville: Developing a Platform to Enhance Community Communication**  
(Technical Topic)

**An Analysis of the Relationship Between the University and Charlottesville Communities**  
(STS Topic)

**A Thesis Project Prospectus Submitted to the**

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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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## **Introduction**

Relationships between universities and their surrounding community are historically difficult to maintain. This is prominent in the relationship between the University of Virginia and Charlottesville communities, where racial inequality is prominent (Green & Waldman, 2018). Additionally, local communities have been weakened by the emergence of social media platforms. As a result, citizens have relied less on their local community, losing touch with their community (Gallagher, 2018). The struggling relationship between the University and community combined with the inequalities imbedded within the city has resulted in distress. This is displayed in the issues that have been unresolved due to the lack of communication. The citizens' disinterest in engaging within their local community has resulted in the University being uninformed on the issues they face. Furthermore, if the University cannot adapt to the wants and needs of the residents, Charlottesville will become an unattractive place to live and will deter talented individuals from moving to the city.

In an attempt to open lines of communication between the University and Charlottesville communities, as well as provide a platform for community members to discuss their visions for the future of Charlottesville, the technical project outlined in this document seeks to deliver a platform in which community and University members can post designs, or blueprints, for different aspects of Charlottesville. Technical platforms have been instrumental in revitalizing community engagement in many other cities (Hatcher, 2014). The STS research will analyze the problems within the community, specifically racial inequality, and the current efforts by the University to overcome them. It will look into issues from the past, as well as recent efforts by Jim Ryan, the University president, to make Charlottesville a stronger community. With the

communities continuing to divide, an examination into the past and present actions can help build a model on how to best strengthen the Charlottesville community.

**Technical Topic: *Smart Charlottesville* – Developing a Platform to Enhance Community Communication**

The implementation of technical online platforms has become an increasingly popular idea to engage residents of a city with local government, and the University of Virginia plays a vital role in this due to its technical expertise. Professor Ferguson and Professor Ku are part of the STS department at the University of Virginia, and they are conducting research with their STS 4500 students to develop research ideas for transforming Charlottesville into a smart city. These ideas, however, need a platform that can be viewed and contributed to by both residents and the local government. The research problem to be solved is how to efficiently communicate these ideas, and others, to the Charlottesville community to improve the city for the future.

Currently, there is no viable platform that solves this problem of lacking communication in Charlottesville, since the research problem demands different user types and custom databases that are unavailable with platforms such as WordPress. The work done by the current capstone group of this academic year will provide the first iteration of a solution to bridge the gap for collaboration between the University and Charlottesville. The capstone project will last the entire academic year of 2019-2020.

Creating a web application public to all users will address the problem in a positive way, by working to provide a safe, non-anonymous site for community members to share ideas of changes they want in the community through engaging discussions. The website will have a feature for users to submit blueprints for proposed projects where they can also add file

attachments such as pictures. The platform will require users to register and login to submit posts and interact with other users. The users will be able to look at the projects and comment on them, mark projects as “favorites” for easy access later, and connect with the authors of the blueprints via email. Community members can also submit smaller problems around the city to gain attention from other members so they can be fixed. There will be an “about us” tab where interested visitors can get in contact with the creators of the site and learn more about this initiative. The landing page will have a map that shows the Charlottesville area with ongoing projects pinned so users can explore projects in different areas by clicking specific pins on the map. Finally, there will be a resources tab describing places users can go to learn more about projects and current city work in general.

To build this website a strict set of requirements will be collected from Professor Ferguson and Professor Ku. Requirements contain the attributes and properties of features of a system that the user wants to help solve their problems. It is important to gather system requirements to correctly understand the goals of the client and to facilitate the work of the developers to best cater towards the stakeholder’s needs. Listed below are the capstone group’s minimum, desired, and optional requirements:

**Minimum Requirements:**

1. As a user, I want to be able to comment on a blueprint to give my support or feedback.
2. As a user, I want to be able to filter through blueprints based on what category they fall under.
3. As an administrator, I should be able to manage blueprint content by hiding or removing it.
4. As an administrator, I should be able to manage the privileges of other users (students, community partners, and community members).
5. As a student, I should be able to create my own blueprint space so that others may view it.
6. As a student, I should be able to view other students’ blueprints.

7. As a community member, I should be able to leave comments on a student's blueprint.
8. As a community member, I need to be able to post blueprints.
9. As a community member, I need to be able to like specific comments or blueprints.

**Desired Requirements:**

1. As a user, I should be able to search for keywords that define the type of blueprints posting I want to look at.
2. As a user, I should be able to view blueprints based on specific location

**Optional Requirements:**

1. As a user, I should be able to comment on other comments.
2. As a student, I should be able to tag my post with specific categories.

At the end of the project, we will have a collaborative, online workspace reachable by both the Charlottesville community and academics at the University. Users will be able to post ideas, gather feedback, collaborate, and connect with University resources; the University can do the same, as well as be able to identify problems in the community that may have otherwise remained hidden.

**STS Topic: Creating a Stronger Charlottesville Community**

Since the early days of the University of Virginia, the city of Charlottesville has been stricken by controversy. The University was built with the use of slave labor and was founded by Thomas Jefferson, a slave owner. In the early 1900s, there was a resurgence of white supremacy through the city until the 1930s, where disdain for violence caused protests from Charlottesville citizens (von Daacke & Schmidt, 2019). These ideas permeate throughout Charlottesville to this day.

In the 1960s, a local black community, Vinegar Hill, was uprooted by an ordinance that allowed the city to reclaim any land that was deemed unsanitary. They eventually announced that

the whole community would be razed. The toll of this followed the families for the rest of their lives, as they lost their sense of community and were placed into public housing. The land was eventually used to extend the downtown mall area, but the injustice that the Vinegar Hill families faced further extends the misdoings of the past (Smith, 2017).

Through the stories of Vinegar Hill and the emergence of the KKK in Charlottesville, the University and local government have made strides at becoming a more inclusive community. Although these efforts have made Charlottesville a safer place, they culminated in revolt from white supremacists in the Unite the Right rally. On August 12<sup>th</sup>, 2017, hundreds of white nationalists marched through Charlottesville in attempts to “reclaim it.” They were protesting the removal of a Robert E. Lee statue, who was a confederate leader during the Civil War. The Charlottesville community anti-protested in large numbers, causing there to be physical altercations resulting in many injuries and one death (Katz, 2017). Figure 2 shows a striking image of a protestor driving a car through a crowd of anti-protestors, causing many injuries.



**Figure 2:** The image shows the result of the Unite the Right rally, where cars driven by white supremacist were driven into crowds of anti-protestors, causing many injuries and one death (Katz, 2017).

The riots caused the community to be confronted by the issue of racial inequality.

Reflecting on the issues of the past, Dr. Atkins, the superintendent of Charlottesville schools,

stated, “I don’t think the hate groups selected our community by chance” (Green & Waldman, 2018). She further reflected on Charlottesville’s refusal of the Brown v. Board of Education Decision, where instead of desegregating schools, city officials decided to shut down white-serving public schools. This failure to desegregate school systems has resonated within the education system today. Black students are given far less opportunity to take more challenging courses, lessening the likelihood of being admitted to selective universities. The city has failed to recognize the underlying problem, where some believe it is due to the history of racism in Charlottesville as others point to socioeconomic differences (Green & Waldman, 2018). The only clarity is that there is a stark divide in educational success for minorities as compared to white students, exhibiting a fraction of the racial inequality within Charlottesville.

Jim Ryan was inducted as the president of the University of Virginia in the fall of 2018, and with it came his plan to make the University the best public university by 2030. He proclaimed in order to do this, that we needed to foster a stronger relationship with the surrounding community (Bruyn 2018). He is approaching this in a variety of ways, one of which involves bringing the issue of racial injustice to the surface. The University and city of Charlottesville have worked to create the UVA Equity Center, which aims to create thriving community partnerships and overcome the issues of racial inequality and socioeconomic disparities (Newman 2019). Furthermore, the University’s creation of the enslaved labor memorial faces the controversial past and looks to move forward to creating a more diverse community (Smith 2019). In order to repair the wounds of Charlottesville and hope for community engagement on a larger scale, it is important to heal past wounds and work towards a better future (Mathews 2019). President Ryan has made great strides for rebuilding the trust, but this needs to be a continual process in order for true healing to happen.

President Ryan's ability to garner more trust from Charlottesville citizens has allowed him to further address other issues. He established a working group in order to determine the most pressing problems that the community faces, which were found to be jobs and wages, affordable housing, public health care, and youth education (Mathews 2019). In response, the University has already started creating long term solutions for these problems, including raising the minimum wage to \$15 and getting contractors to do the same (Hester 2019). This swift action is critical, because as mentioned by a Dr. Michael Williams, "In the wake of all of the conversations going around Charlottesville, Virginia, and the country about equity and about doing what's right, we are in a moment of time when we have to get this right" (Mathews 2019).

My STS paper plans to look into the different aspects of creating a stronger Charlottesville community. The community and University have both had troubles overcoming the racial inequalities, and inaction on these issues will result in further distrust. Furthermore, having a strong leader gaining the trust of the citizens allows the University to determine and address pressing issues. The research will extend this by looking into what current president, Jim Ryan, has done to strengthen community ties, and how his efforts differ from his predecessors. The problems in the Charlottesville community have been imbedded into the community for centuries, and this research looks to find a model on how to bridge together the divided community.

### **Conclusion**

Continuing to grow the relationship between the University and Charlottesville community provides the opportunity to build a stronger community through different tools. The technical portion of my thesis will culminate in a web platform that will allow students, faculty, local government officials, and the community to collaborate on ideas for the future and overall



change the way citizens of Charlottesville communicate with each other. My STS research will investigate the divide between the University and Charlottesville communities, and how the current work being done can help shape the framework of strong communities.

Although the creation of a web platform does not guarantee that community members, local government officials, and other potential users will engage with the system. There is hope that will the current efforts by the University to engage citizens, that there could be potential funding either through the local government or the University itself. The STS research followed by the creation of the technical platform should help mold the future for a stronger Charlottesville community.

## References

- Bruyn, A. P. de. (2018, October 24). President Ryan appoints working group to identify key issues for improving UVA-community relationship. Retrieved October 22, 2019, from <https://news.virginia.edu/content/president-ryan-appoints-working-group-identify-key-issues-improving-uva-community-0>.
- Carr, Shannon L. "Exploring the relationship between college and community." *The University of Vermont*, 26 May 2010, [https://www.uvm.edu/~vtconn/?Page=v24/carr.html&SM=search\\_menu.html](https://www.uvm.edu/~vtconn/?Page=v24/carr.html&SM=search_menu.html).
- Chocano, C. (2018, April 17). What good is 'community' when someone else makes all the rules? Retrieved September 30, 2019, from <https://www.nytimes.com/2018/04/17/magazine/what-good-is-community-when-someone-else-makes-all-the-rules.html>.
- Gallagher, Brian. "Here's how we can use technology to rebuild communities." *World Economic Forum*, 12 Mar. 2018, <https://www.weforum.org/agenda/2018/03/here-s-how-we-can-use-technology-to-rebuild-community/>.
- Green, E. L., & Waldman, A. (2018, October 16). You are still black: Charlottesville's racial divide hinders students. Retrieved December 13, 2019, from <https://www.nytimes.com/2018/10/16/us/charlottesville-riots-black-students-schools.html>.
- Gurwitt, Rob. "The demise of the public hearing." *Governing*, Oct. 2013, <https://www.governing.com/topics/mgmt/gov-demise-of-public-hearing.html>.
- Hatcher, William. "Using technology to develop communities." *PA TIMES Online*, 11 Mar. 2014, <https://patimes.org/technology-develop-communities/>.
- Hector, Wesley P. "UVA announces living wage for contracted employees." *UVA Today*, 24 Oct. 2019, <https://news.virginia.edu/content/uva-announces-living-wage-contracted-employees>.
- Katz, Andrew. "Charlottesville: 'Unite the Right' rally, state of emergency." *Time*, Time, 2017, <https://time.com/charlottesville-white-nationalist-rally-clashes/>.
- Mathews, N. (2019, March 1). "New report recommends actions to strengthen UVA's ties to community. Retrieved October 22, 2019, from <https://news.virginia.edu/content/new-report-recommends-actions-strengthen-uvas-ties-community>.

Newman, C. (2019, October 11). New Equity Center Aims to Create Thriving University-Community Partnerships. Retrieved December 13, 2019, from <https://news.virginia.edu/content/new-equity-center-aims-create-thriving-university-community-partnerships>.

Smith, Laura. "In 1965, the City of Charlottesville Demolished a Thriving Black Neighborhood." *Timeline*, 20 Sept. 2017, <https://timeline.com/charlottesville-vinegar-hill-demolished-ba27b6ea69e1>.

Smith, R. S. (2019, July 17). UVa slavery monument takes shape. Retrieved December 13, 2019, from [https://www.dailyprogress.com/news/uva/uva-slavery-monument-takes-shape/article\\_d7a2fd95-9c88-51f8-be03-beb51784caab.html](https://www.dailyprogress.com/news/uva/uva-slavery-monument-takes-shape/article_d7a2fd95-9c88-51f8-be03-beb51784caab.html).

von Daacke, Kirt, and Ashley Schmidt. "UVA and the History of Race: When the KKK Flourished in Charlottesville." *UVA Today*, 27 Sept. 2019, <https://news.virginia.edu/content/uva-and-history-race-when-kkk-flourished-charlottesville>.