Staunton Makerspace Communication and Classes Management Systems
(Technical Report)

Programming Autonomous Vehicles to Balance Driver Safety and Public Appeal with the Moral Responsibility to Minimize Fatalities
(STS Research Paper)

An Undergraduate Thesis Portfolio
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Sociotechnical Synthesis

Autonomous vehicles (AVs) will likely bring a number of benefits to today's roads, but as this technology rapidly expands, AV manufacturers have done little to convince the public to buy into the concept. High level full autonomy is now being developed, and manufacturers have already chosen to push for cars without steering control, despite the public's preference for this technology's presence. Also, AV developers haven't addressed how the vehicle might handle situations in which the car may have to sacrifice its passenger. With such huge distrust between manufacturers and the public, it becomes necessary to see the issue from both sides and determine what can be agreed upon. These issues fit well into 2 different STS approaches. First, I will compare different ethical frameworks to see which type best applies to the life-or-death scenario. I will also be analyzing the failure of the manufacturers to allow for Social Construction of Technology (SCOT), as they have been actively working to limit the interpretive flexibility of AVs. I am doing my research by conducting a survey along with brief interviews. The survey will provide a general idea about how people perceive AVs and what response they want in the ethical dilemma, while the interview is meant to get some more in-depth reasoning as to why people are choosing these answers. I expect to find that people are very much in favor of steering controls and have a distrust in AV companies, and that they would want the AV to not sacrifice its passenger in the given dilemma. The implication is that these findings can be used as further proof that AV manufacturers need to be more transparent with their technology and try to understand public opinion, or else they might never be able to see AVs reach their potential.

Communication is vital to the success of AV manufacturers, but the same can be said of smaller businesses as well. Technology is advancing rapidly, and with so many ways to communicate, sometimes the process becomes too complicated or convoluted. The Staunton

Makerspace, a local makerspace for Staunton, Virginia, has a similar problem: its members are inundated with numerous methods of communication and no single place to consolidate. Additionally, the volunteers who run the facility have no easy way to organize their logistics or plan meetings and classes. Thus, my team and I set out to create a website for the makerspace that would allow them to manage all communications in an easy-to-access site that also works in an on-site kiosk. The site also has a system for managing classes and monitoring members' certifications, which will be of great use to everyone involved with the makerspace. The combined functionality of these systems will help the Staunton Makerspace communicate and organize better, and they should be able to avoid spreading their operations across too many other sites.