

Thesis Project Portfolio

Meals-on-Wheels Android App

(Technical Report)

An Exploration of Public Engagement and its Impact on Fighting Environmental Injustice

(STS Research Paper)

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science

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Bachelor of Science, School of Engineering

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Sociotechnical Synthesis

The mainstream environmental movement that started in the 1950s and 1960s exposed to the public the dangers of environmental degradation, leading to the introduction of the concept of environmental injustice. This concept explores how disadvantaged and marginalized populations are being unfairly impacted by environmental problems. Affected groups are forced to work by themselves in order to enact the change that is needed in order to solve the problems they are facing. The following technical thesis discusses the creation of an Android application that aims to help the Meals-on-Wheels food distribution program in Charlottesville, Virginia become a more environmentally friendly company through reducing paper waste. In order to further analyze environmental issues, the STS thesis discusses the environmental injustices that the residents of Flint, Michigan experiencing during Flint Water Crisis and how public engagement affected their fight against the injustices they were experiencing.

The technical thesis discusses the creation of an Android application that allows the Meals-on-Wheels program to reduce the need for paper in order to conduct their services, as well as better organize and communicate information. The goal of this project was to help the program transition their employees to communicate delivery details such as delivery name, address, and phone number, through smartphone. During the internship, the team was able to create an application that displayed information of clients for deliverers to see. Problems such as database integration and unfamiliarity with Android app development resulted in the team not being to finish the prototype application by the end of the internship. However, this early prototype app set a good starting point for future developers to continue the work.

The STS thesis explores the use of public engagement during the Flint Water Crisis in order to convince Flint's government to investigate the situation and enact change. This thesis analyzes the forms of public engagement that were used and their differing effects and outcomes. The engagement between Flint's public, scientists, government showed the importance of trust in their interactions. The public needed to trust that researchers were there to help their cause and to show that their concerns should be taken seriously. However, differing motivations caused distrust between the parties, leading to residents further losing trust in those that are supposed to help them. The public's relationship with the government also became significantly damaged due to the government's past failures of helping them. Even as the government attempted to begin programs to help the crisis, residents still did not trust them. Perspectives also played a major role in public engagement. Although many individuals and groups wanted to help Flint's residents, their perspectives differed in why they wanted to help as well as the ways in which they helped. Researchers, local grassroot associations, and high-capacity nonprofits all differed in these aspects, which resulted in differing results.