Short-Range FM Radio Transmitter

(Technical Report)

Impact of LEED Requirements on the Construction Industry

(STS Research Paper)

An Undergraduate Thesis Portfolio
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Sociotechnical Synthesis

Whether it is answering a phone call, sending a text message, scrolling through different social media platforms, or connecting your phone to the automobile via Bluetooth, drivers tend to become distracted by taking their eyes off of the road. Also, when handheld devices are connected to Bluetooth, there may be problems with dropped connections, audio hiccups, trouble with pairing and the electronics become more susceptible to viruses. To resolve the issues of distracted driving and Bluetooth connectivity, we created a short-range audio transmitter that uses empty frequency modulation bands to establish a safe connection between a user's handheld device and their vehicle. This device would involve only one step to establish a connection to minimize cell phone usage as well. The development of this technology would reduce the risk of drivers putting both themselves and the passengers within the vehicle at a higher risk of being involved in traffic hazards, which could lead to injury or death. The product would also help promote an individual's privacy by making them less likely to being hacked since they would be using an alternate form of wireless connectivity.

With climate change becoming a rising concern, the second part of my research will be focused on observing how environmental standards such as Leadership in Energy and Environmental Design (LEED) have impacted the construction industry and the engineering applications that are used. To analyze this problem, Elinor Ostrom's Institutional Analysis and Development framework will be used to see how external variables such as the LEED requirements have impacted how actors may approach a situation and what the outcomes may be. The outcomes can then be analyzed and compared to past results. To conduct this STS research, empirical studies and interviews with different environmental and conventional firms will be done. Empirical studies

would involve comparative and quantitative analyses of different companies' annual and sustainability reports. These reports would provide statistics concerning carbon emissions, revenue growth, profitability, safety, energy performance, and indoor air quality that can help determine if environmental firms have been impacted positively by these standards. By performing interviews, information about the increased risk of safety hazards, increased awareness of sustainable technology, and the business structures used for green building can be gathered from professionals within the construction industry. Through these research methods, it can be found how LEED requirements in energy, atmosphere, and indoor air quality have impacted the construction industry's finances, business structures, delivery methods, safety, and energy and emission performance.