Thesis Project Portfolio

Anti-Package Theft Locking System

(Technical Report)

Improving the Last-Mile: Eliminating Package Theft through Delivery Codesign

(STS Research Paper)

An Undergraduate Thesis

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Sociotechnical Synthesis

Introduction

Package theft has been increasing since the 1990s, and it has become an increasingly challenging problem to solve with increased in package deliveries. Before the coronavirus pandemic, package theft issues had grown to the point millions of Americans had experienced package theft at some point, and millions of packages were stolen daily. The coronavirus pandemic led to more consumers relying on package deliveries, which left more opportunity for package theft and a corresponding increase in stolen packages. While package deliveries provided safety from the spread of coronavirus, delivery services' use of unattended package deliveries meant that more thieves targeted the front porches of consumers. As a result of the coronavirus pandemic, the number of consumers who had experienced package theft nearly doubled.

Technical Topic: Anti-Package Theft Locking System

The technical thesis introduces a potential solution to the problem of package theft. The prototyped solution included a multi-level security system, where the primary user has an all-access code. This primary user can create one-time access passcodes for delivery drivers to store a package in a secure location, as well as time-limited passcodes for short-term renters, which eliminates the key transfer process. Additionally, the proposed locking system can be integrated into a door, a package box, or a package slot, which gives the user several options for incorporating this system to the last-mile delivery process. This locking system comes with a camera to monitor users who may try to steal a package of break through the lock for another reason. This proposed solution is meant to reduce package visibility and place a roadblock for package thieves trying to steal packages.

STS Topic: Improving the Last-Mile: Eliminating Package Theft through Delivery Codesign

The STS Thesis proposes a codesign methodology, where stakeholder groups are engaged in a collaborative design process to discuss the problems faced by each group related to package theft. These stakeholders can then empathize with the other stakeholder groups, propose potential methods to improve the last-mile delivery process, and compromise to create the best possible solution to all stakeholder groups problems. The STS thesis will discuss the problems that each of the groups may face and potential opportunities to engage these stakeholders in a collaborative design process. These stakeholder groups include law enforcement, delivery services, retailers, consumers, and delivery drivers. By bringing in the view points of each of these stakeholders, a better understanding of the problems causing package theft will be developed, which will allow these stakeholder groups to come up with better potential solutions targeted at reducing package theft.