CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY

Name(s)	Project Number
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Project Title

Mobile Device Activated Package Theft Preventing Lockbox

Abstract

Objectives/Goals

Design an intelligent, mechanical lockbox that can prevent package theft and allow multiple package deliveries. Existing lockboxes can only accept one package before the owner must come home and unlock the box manually.

Methods/Materials

My project included a Raspberry Pi computer and camera, a wifi USB dongle, custom electronic circuits (with various components), the Kicad PCB design tool, CircuitLab (online circuit schematic editor), sheet metal (varied sizes), plexiglass, rubber sheets (varying sizes), Twilio (cloud communications), Python, Bash, Apache, and various python packages. Used a Raspberry Pi to control various circuits that mechanically unlocked a package theft lockbox from a mobile device messaging service. The camera was used to take picture of delivery man as a prompt for the owner of the box to reply to.

Results

I designed a mechanically locking package theft lockbox. This lockbox can be opened multiple times from the messaging service on a mobile device such as a phone. The lockbox is locked with a thick metal bar and was constructed using sheet metal to prevent package theft.

Conclusions/Discussion

This package theft lockbox is a large improvement upon the existing lockboxes. This lockbox can be opened from nearly anywhere at any time. This allows people on vacations to accept multiple packages remotely without having to return home to unlock the box manually.

Summary Statement

I designed an intelligent lockbox that prevents package theft and allows the owner to accept multiple packages from anywhere at anytime.

Help Received