

Survey of competing Solutions

Project: Mail Gobbler 9000 (Smart Mailbox/Dropbox)

Document: Survey of Competing Solutions

Team members: Luan Vo, Adam Cytrynowski, Jackie Chan, Brendan Truong

List of Competing Solutions:

https://www.amazon.com/gp/product/B07WRCP8PQ/ref=as_li_qf_asin_il_tl?ie=UTF8&tag=282162-20&creative=9325&linkCode=as2&creativeASIN=B07WRCP8PQ&linkId=581e91aad3f59d6a7c2d7c9f23beb597#customerReviews

1. Danby Parcel Guard (Current product on Amazon):

The Danby Parcel Guard relies heavily on its mediocre phone application to have two way communication with postal service workers, receive video feed, and motion detection alerts. There are complaints about its user interface and its size.

Complaints/Cons:

1. Number pad restrictive to 4 digits
2. Camera has no night vision/fails to function at night
3. Package compartment is very small and restricting

https://www.kickstarter.com/projects/smart-drop/take-control-over-your-deliveries-with-eufy-smart-drop?utm_source=google&utm_medium=search&utm_campaign=smart%20mailbox=google_search_multi_smartdropks_sd_c2&ref=9f8yhd&gclid=CjwKCAjw4rf6BRAvEiwAn2Q76sWcH72n0PUfqk1D4WF1QKPa2gm0BtNRC5ptT_LO4tGG_7iVub4LFB0CH08QAvD_BwE

2. Eufy Security (Kickstarter in Progress):

The Eufy security mailbox is a kickstarter in progress, that promises a variety of features from two-way audio from the to user to postal workers who deliver packages, video feed, delivery notifications, locking mechanisms, and etc. Although it has a lot of promise, it lacks a mail/envelope compartment and requires wiring through the house. To distinguish ourselves, we opted for a more low powered portable system that provides distinct but reliable functions rather than aiming to be diverse and perhaps inconsistent due to that.

Complaints/Cons:

1. No mailing section, only package.
2. Two way audio
3. Option of having a lock code or no lock code.

https://www.amazon.com/Mail-Boss-7526-Manager-Security/dp/B07QRMKXWR/ref=sr_1_1?dchild=1&keywords=smart+mailbox&qid=1600055747&sr=8-1

3. Mail Boss 7526:

The Mail Boss 7526 is an example of many physical mailboxes that promise security. It has a baffle door, which allows packages and mail in but is angled to restrict any malicious persons from reaching in and grabbing the contents. However, this is simply a physical means and albeit it does provide security, it has no benefits of a notification system, or authentication of packages. There are many physical security mailboxes like this, so we choose this best seller on Amazon to sort of represent all physical security mailboxes and their cons/benefits.

Complaints/Cons:

1. Provides physical security via sturdy and sealed design, but doesn't have any smart IoT functions.

https://www.amazon.com/Mailbox-Alert-Message-Notifications-External/dp/B074XMZDQG/ref=sr_1_7?dchild=1&keywords=smart+mailbox&qid=1600055747&sr=8-7

4. Mailbox Alert (MySpool):

The Mailbox Alert (MySpool) system is a simple notification system that sends text or email updates, when the mailbox is opened. Although great for its notification purposes, it's built solely for envelope mailboxes and doesn't have package security capabilities. That being said, as it is so simple it lacks any smart capabilities besides the notification system.

Complaints/Cons:

1. Simple notification system for when the door opens.
2. Only works with a letter mailbox, and notifies each time the door is open.
3. Battery powered.
4. No authentication, simply notifications.

<https://www.homedepot.com/p/RTS-Home-Accents-ParcelWirx-Delivery-Box-Vertical-with-smart-lock-Premium-GPT-550200420A7981/310853806>

5. Parcel Wirx:

The Parcel Wirx is unique in that it has a separate storage and locking system. Using a physical key lock that can snap onto a package bin, the Parcel Wirx takes a different approach which allows the bin to vary in size and centralize the smart functionality on the lock. Despite these benefits, it still lacks a mail compartment for notifications regarding envelopes, and any notification system for packages either as the lock functionality is to scan and recognize packages upon arrival. With that, it uses our same idea of package recognition through scanning the mailing barcode, but it also depends on mail carriers to

reattach the lock after their deliveries, which may be a source of unreliability. Our design intends to have a self closing lid, to remove such risks.

Complaints/Cons:

1. Has no mail slot, and no notification system.
2. Relies on postal service workers relocking the system themselves.

Conclusion:

We want to address the issue of postal security, as we continuously become increasingly relying on postal delivery of envelopes and packages. With that, we examined competing solutions that worked towards this goal, but found they all had mediocre reviews or some type of con to them. Thus, we aim to address these issues and implement a simple yet fully functional system that appeases security concerns while being low power.

Based on these competing markets, we opted to go in a few different directions.

Most of all current smart mailboxes are plug in devices that require a wired connection. We've opted to go for a wireless option instead. This gives the user more freedom in placement along with making things easier to set up instead of needing to drill holes or run wiring through the house.

Along with that, we're planning to make our smart mailbox low power, and if possible solar powered. This is to work towards a more eco-friendly option as all those on the market rely on electrical outlet power. As a smart mailbox may be seen as something unneeded and a waste of electricity, a solar powered option can help sate this argument. Otherwise, we still intend to rely upon rechargeable batteries.

This reduces a few options such as a live camera feed would consume too much power, but we make up for it by introducing new features. One being our means of authentication is to scan and compare barcodes in order to verify expected packages. This will keep foreign packages from being dropped off, in case of any dangers (i.e. the recent "Chinese Mystery Seeds" ongoing scare).

We've also added a mail slot. As letters have no bar codes, and are usually low risk, we simply have a notification system for when mail is dropped rather than requiring a complex security system. This is an ease of life feature for the user. Also, typical smart mailboxes/dropboxes are either or being that they are either a mailbox or drop off vault whereas ours provides a smart system for both.

Also, all of them are quite expensive for only snippets of functionality whereas ours should be low cost and encompasses most of the functions.

We're aiming for a simpler smart mailbox/dropbox system that covers the basic functionalities well and distinguishes itself based on its low power requirements and portability. By looking at the cons and benefits from existing solutions, we decided this was a proper approach to produce a reliable smart solution for postal security.