

## Background



**21%**

households in Baltimore City experience food insecurity as of 2021

**~146,000 residents**

To address this, we collaborated with Bmore Community Food and **designed a seamless food distribution system** that offers sustenance to individuals at any hour.

## Design Process



Inspiration



Ideation



Implementation

We learned the history and current context, then dove into responsible **co-design with the community partner** to create sustainable and adoptable designs.

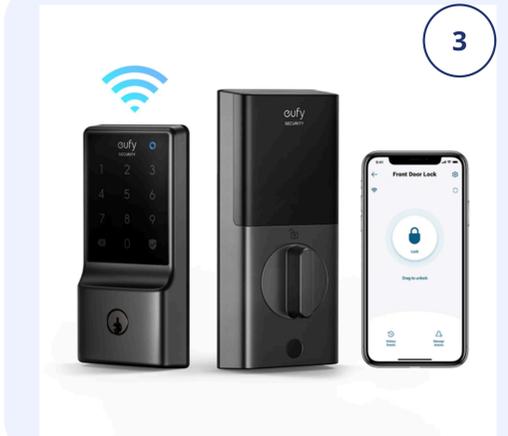
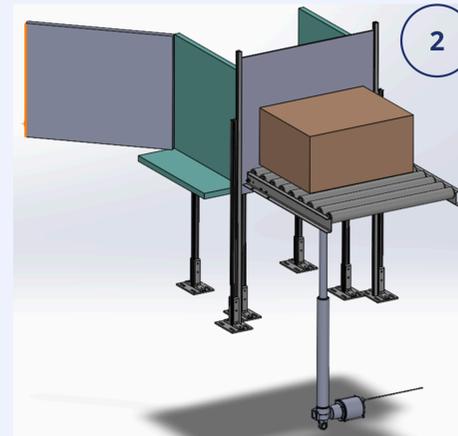
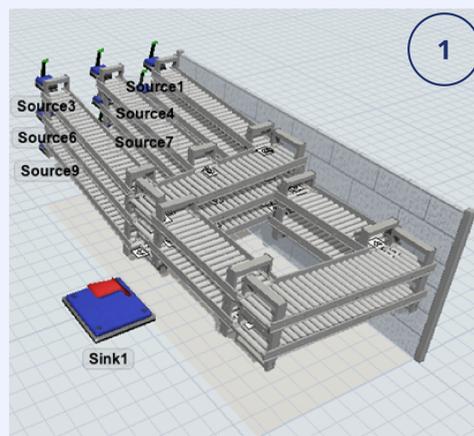
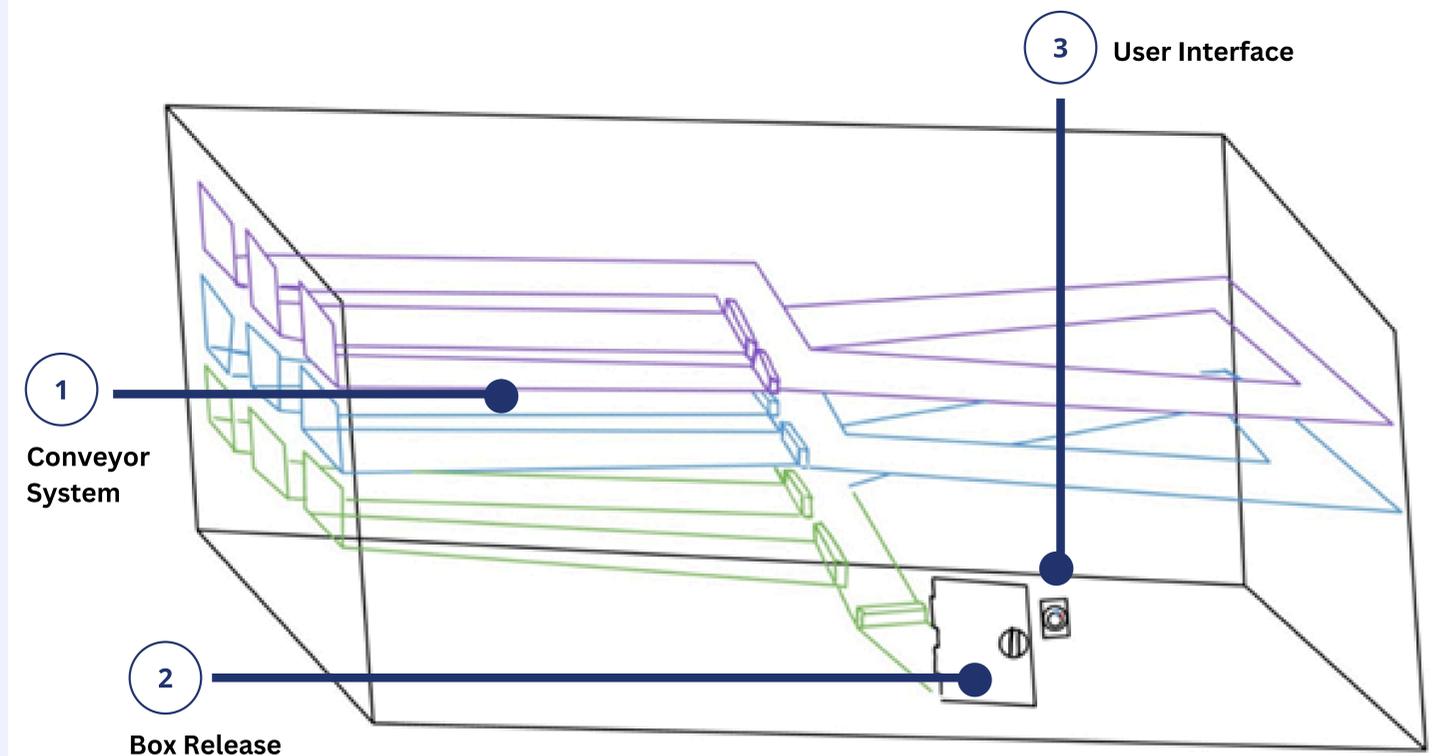
## Meet the Team

We are a group of **undergraduate engineers** passionate about leveraging our engineering skills for **community engagement**.



Thank you to our faculty mentors, **Dr. Nusaybah Abu-Mulaweh** and **Alissa Burkholder Murphy**; and our community partner, **JC Faulk**.

## Solution: An Automated Box Delivery System



## Subteams

### 1 Conveyor System

Considering energy, time, and cost, our team decided to design a conveyor belt system using skater rollers to efficiently deliver up to 91 boxes using gravity alone.

### 2 Box Release

An automated door powered by an actuator that releases one box at a time onto the main platform to be received by the user once the door is closed.

### 3 User Interface

A camera with two-way audio allowing the user to communicate with a volunteer who will release the necessary number of boxes using a bluetooth controlled lock.