

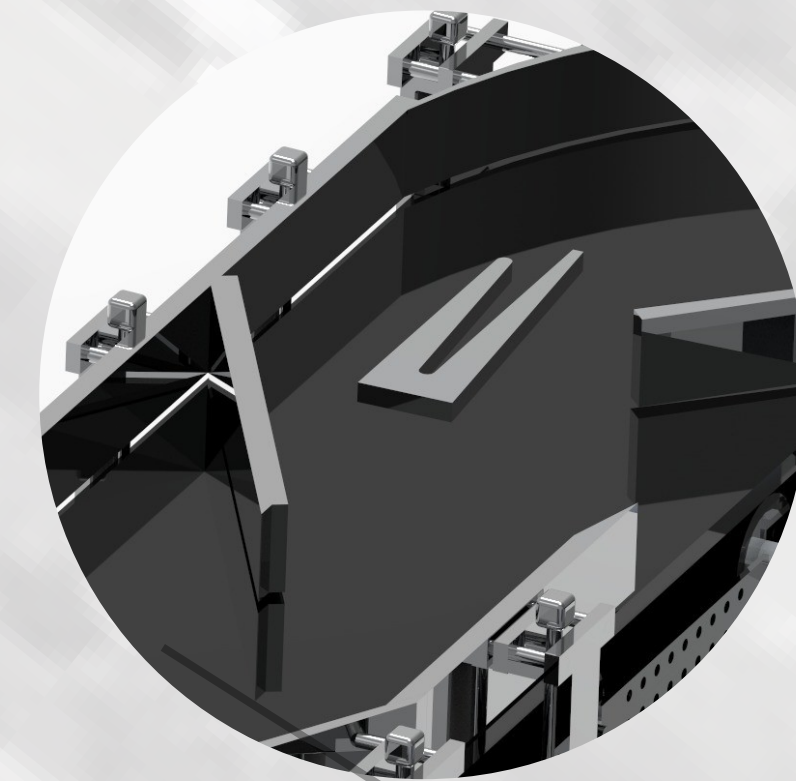
Special Mentions: Dr. David deMontigny, Allan Kraushaar, Spencer Schubert

Current System

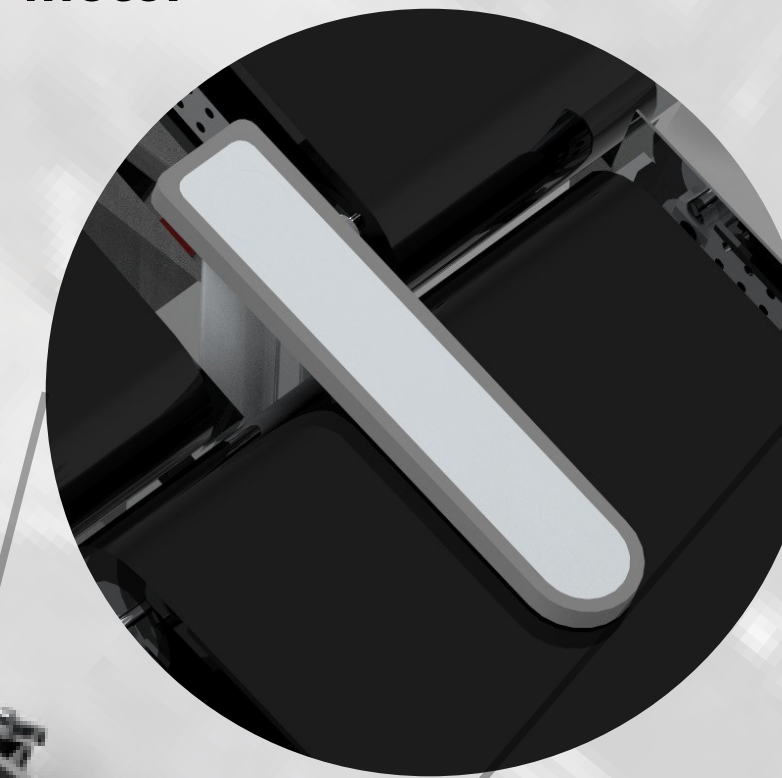
Currently, manufactured parts are discharged into a bin haphazardly, requiring manual handling for further process. The random discharge of the parts, not only cause disruption, but also damages the part due to collision

We were given task to automate the machine. One of the two blanks have sharp edge on one side. Magazine to stack all the parts was requirement for all further heat treatment machine.

Rotating Mechanism for blanks to stack it in a bin



Flipper Hand to direct parts to appropriate conveyor belt.
Ultrasonic Ranger Finder controlled Servo Motor

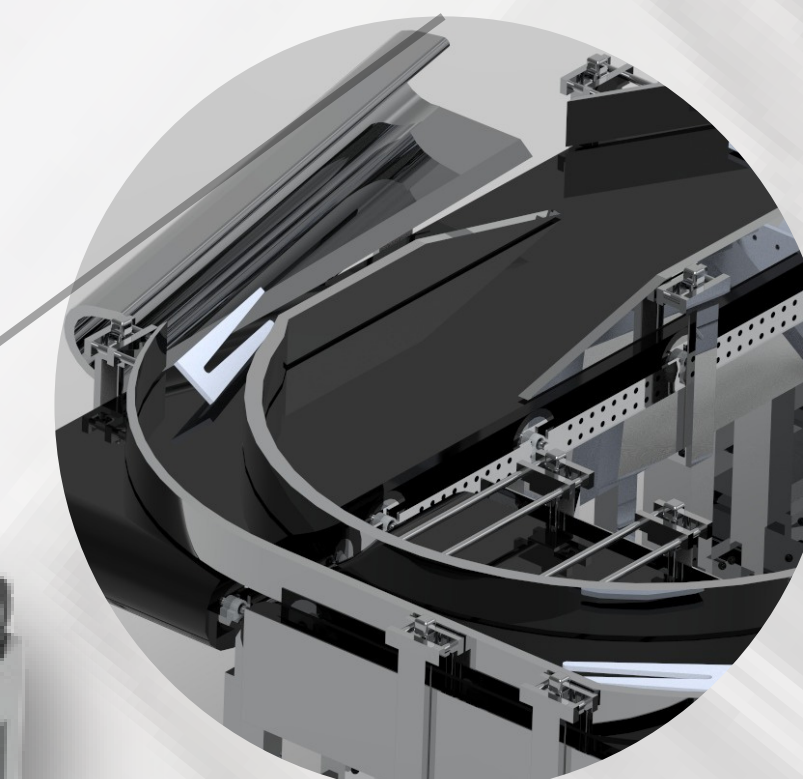


Our System

Parts from the splitter are dispatched on conveyor belt. The first part that falls on conveyor belt is directed to left side of conveyor belt using flipper which is controlled by Ultrasonic Range Finder sensor.

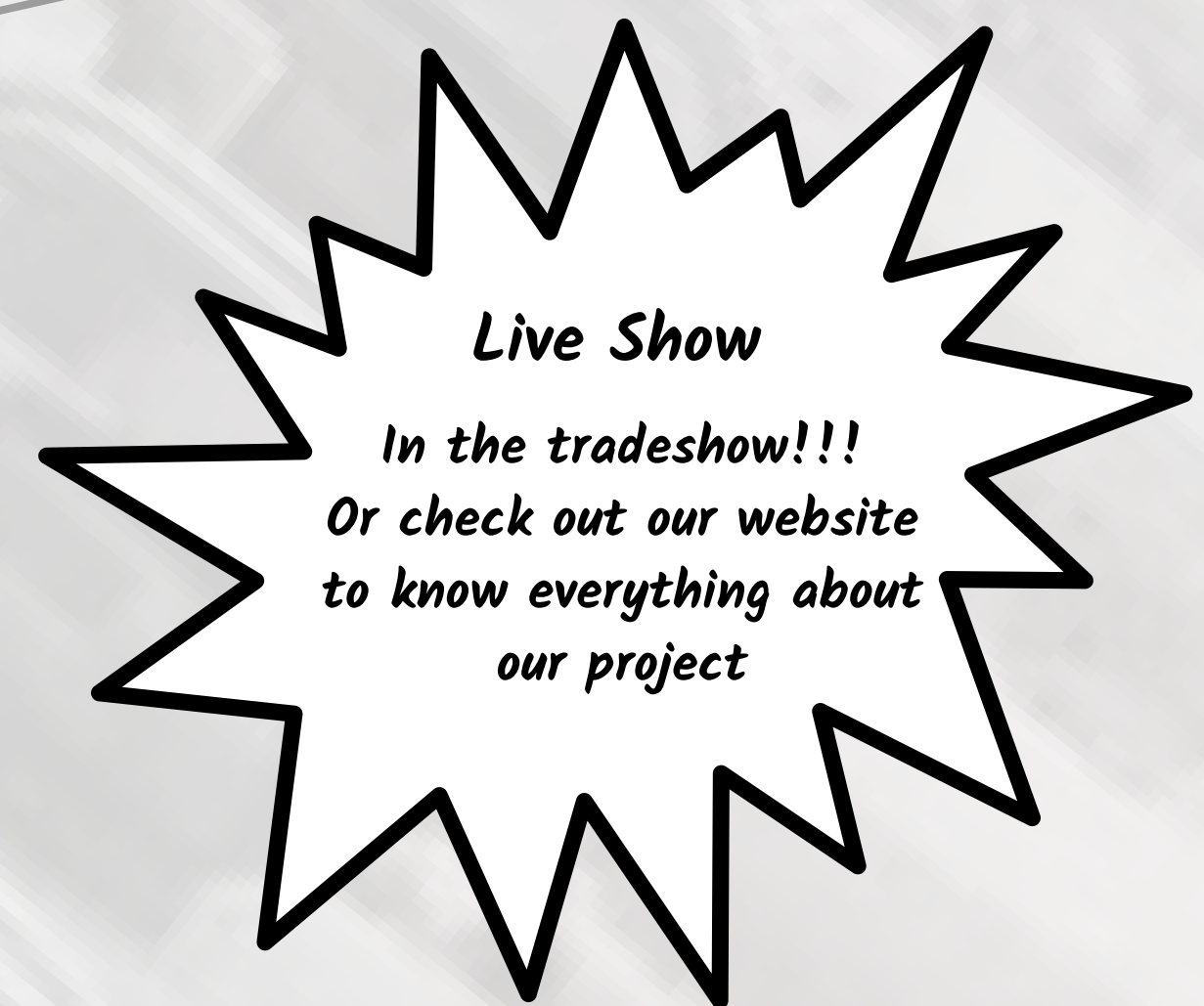
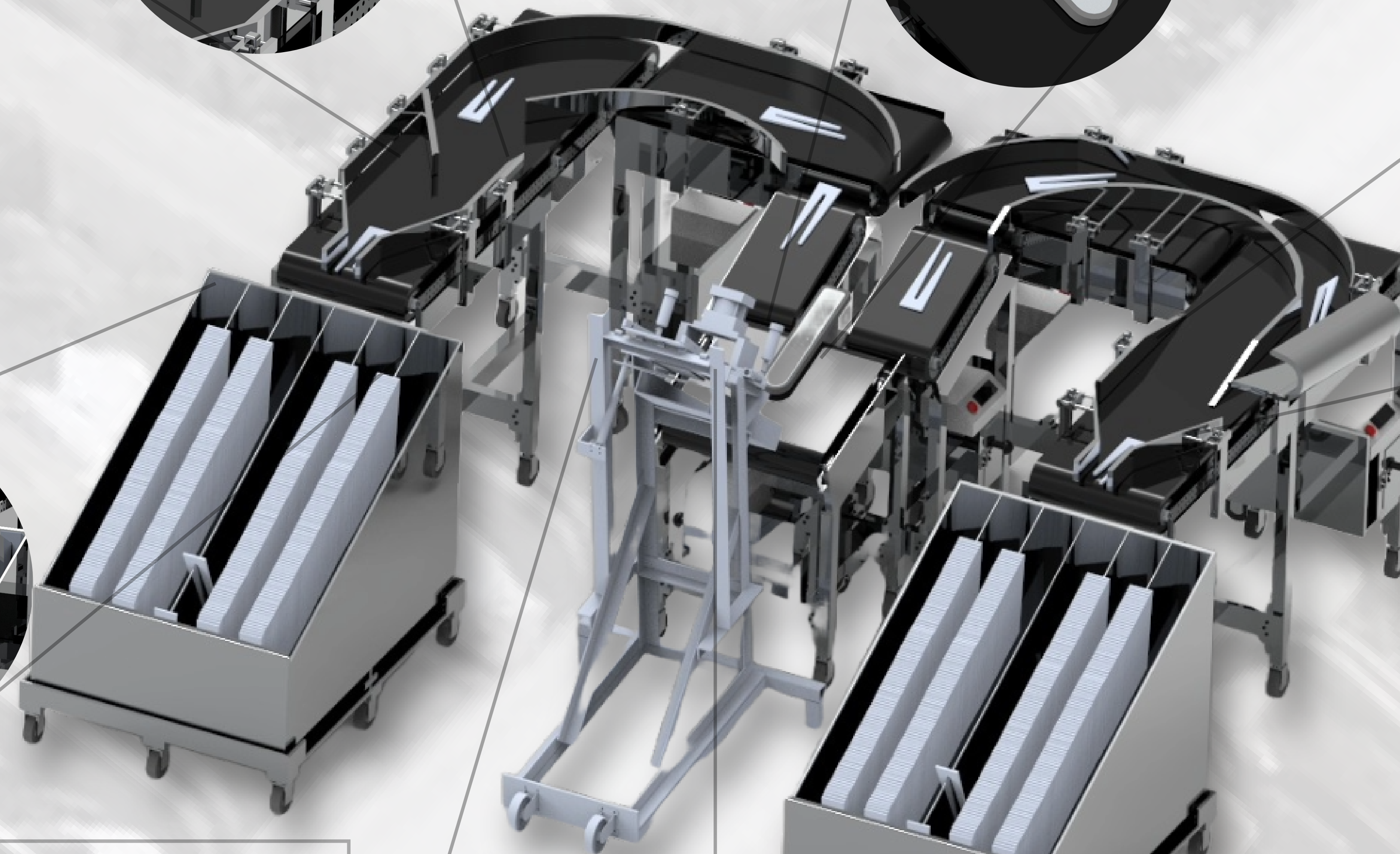
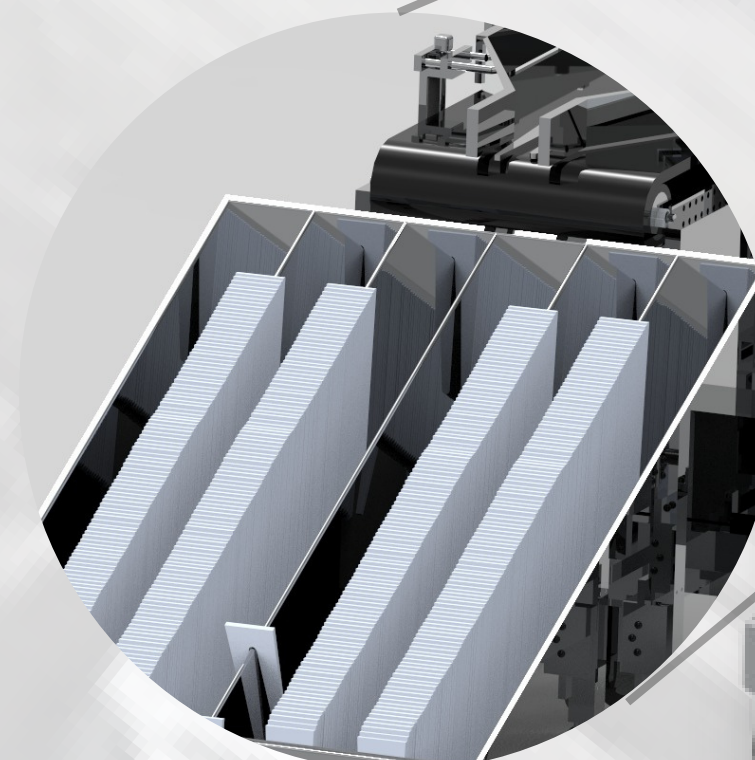
Further down the conveyor belt, parts are flipped and rotated using assisted frames on conveyor belt.

Flipper Mechanism to flip parts 180 degrees
Roller Coaster structured frames to support the flipping process



Gravity fed bin to collect all the parts from conveyor belt.

Rods are placed at an angle of 25 degrees
For further safety, rubber cushion is placed at the front of the bin



Rushi Patel



Sonak Patel



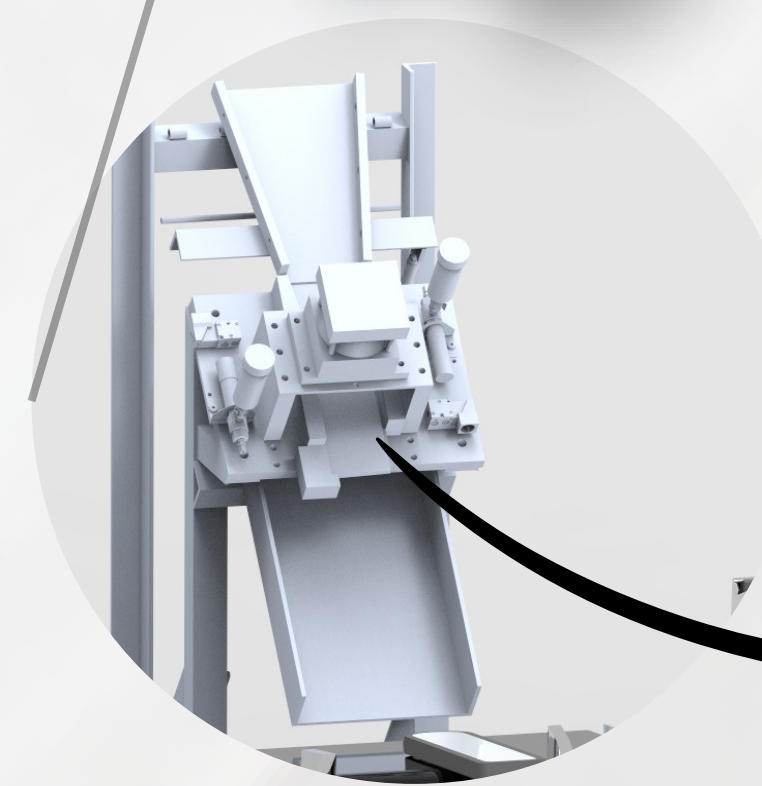
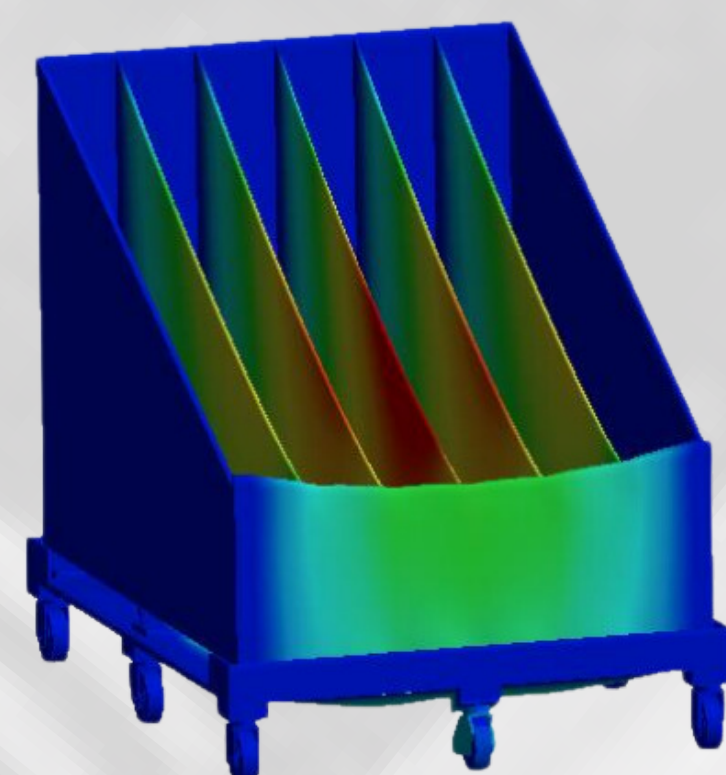
Divyesh Kotadiya



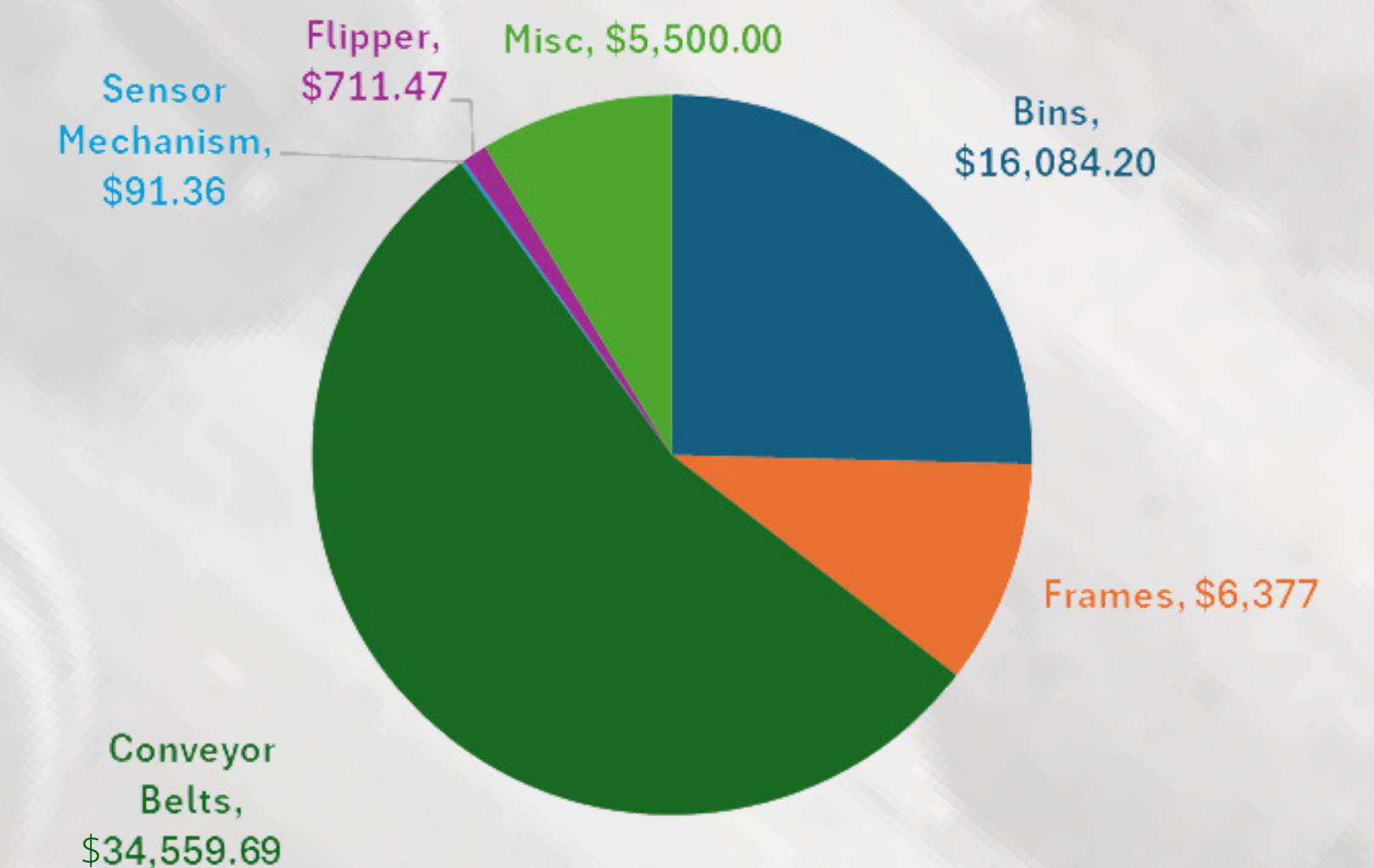
Umang Suthar

Structural Integrity

- 540 parts to be stacked in each bin
- 108 parts in each row(310 lbf)
- 1550 lbs total weight when fully loaded
- Structural Steel S460 N
- High Strength and Weldable
- After 250 cycles, Total Deformation is $3.5E-05$ "



Part A has sharp edge on the top and Part B needs to be flipped



Scan Me

