M2.01 Punch Cap Vibratory and Feeding System

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West Texas Lighthouse for the Blind
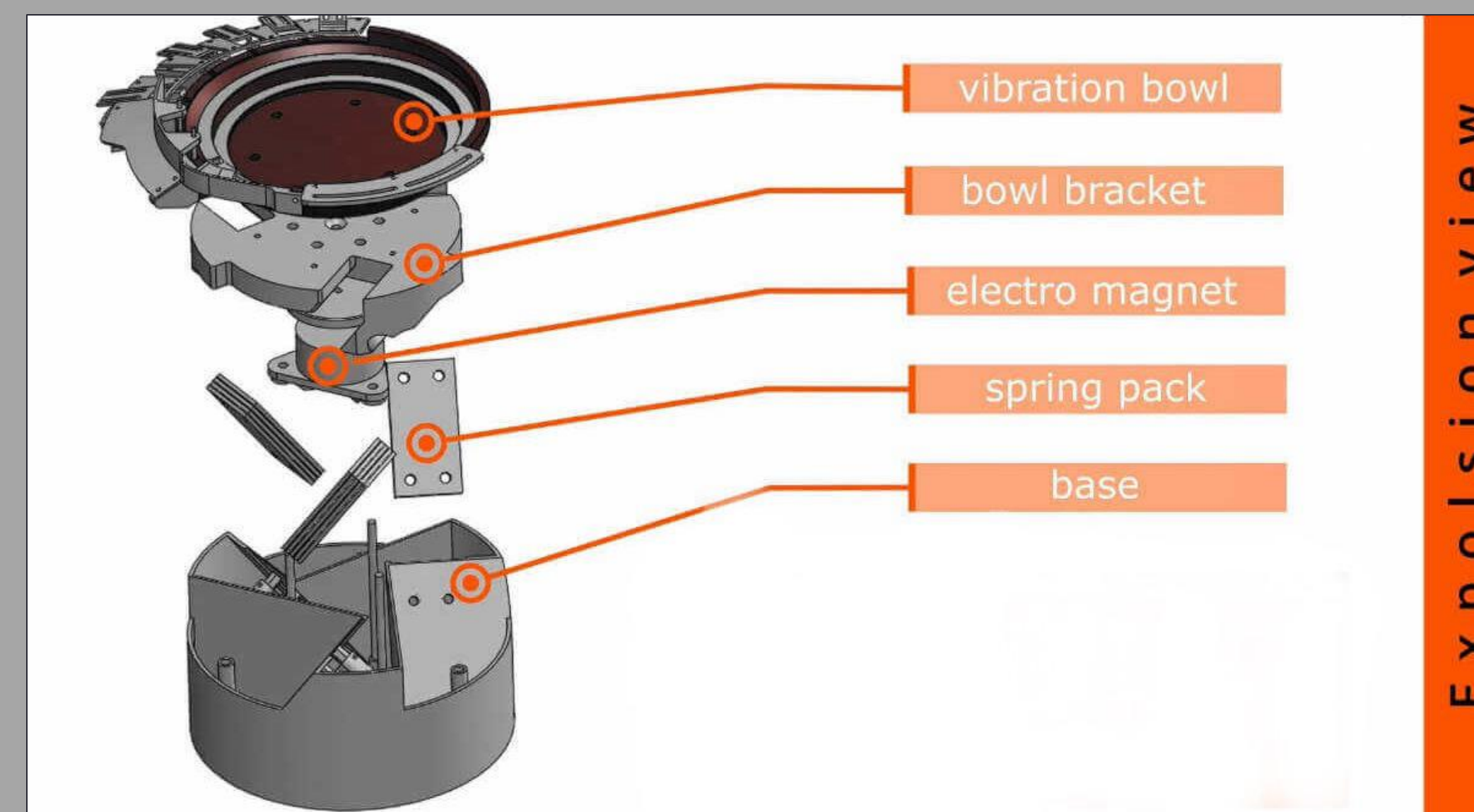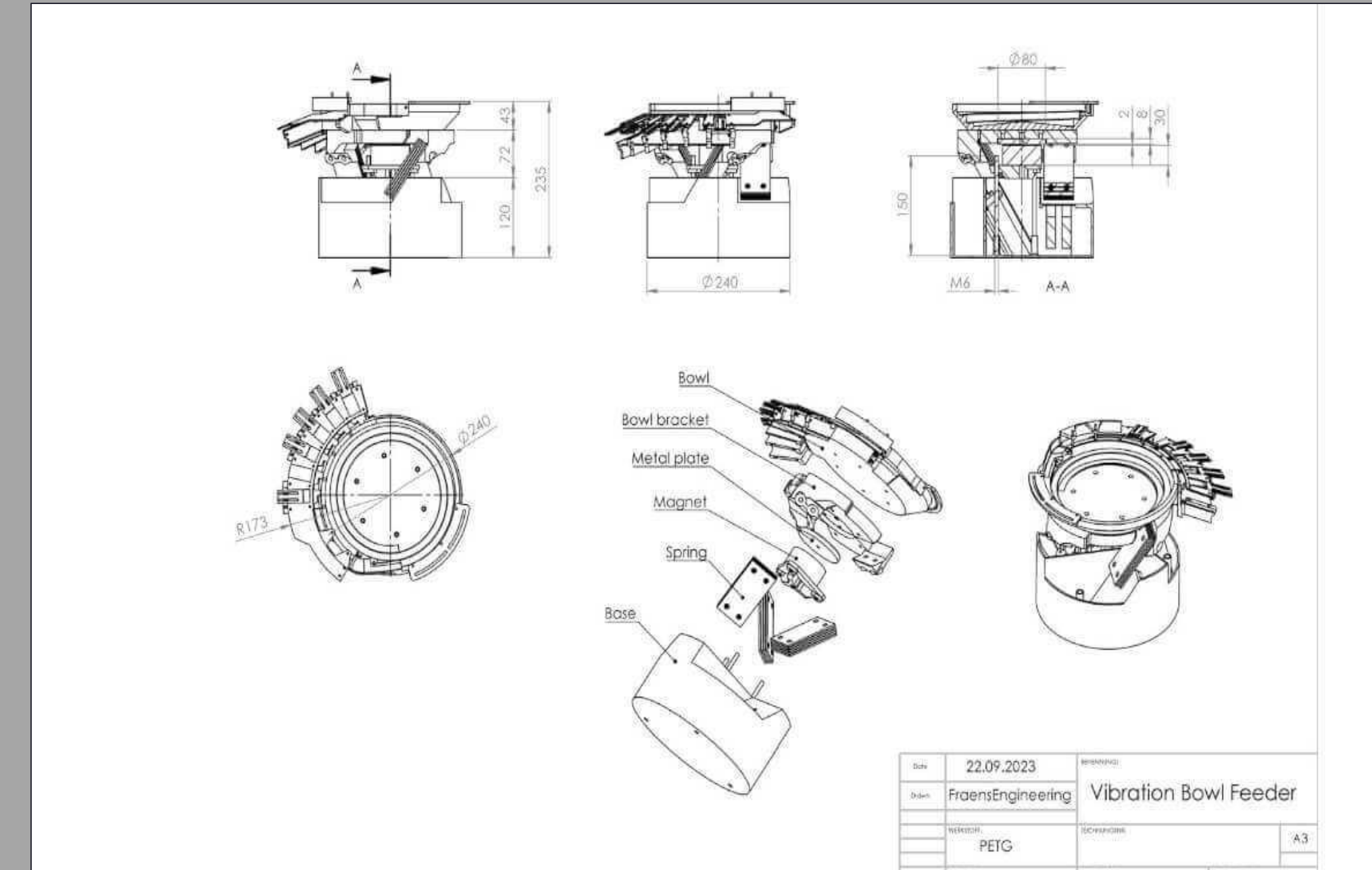Center for High Performance Systems (CHiPS) Lab

Introduction

The Lighthouse Bend EZ Cap Punching Machine Project aims to enhance the efficiency of the cap punching process by implementing a feeding system to easily grab caps in the correct orientation. This involves designing and modeling an effective feeding system that will increase the productivity of the punching process by decreasing down time in the cap loading stage.

Preliminary Studies

- Our overall goal was to improve safety and optimization
- The best optimization option we found was a Vibratory Feeding Bowl.
- The feeder bowl we decided to create allowed for precise orientation and positioning, consistent delivery, tactile accessibility, elimination of clutter, and ergonomic efficiency

Current Setup & Process

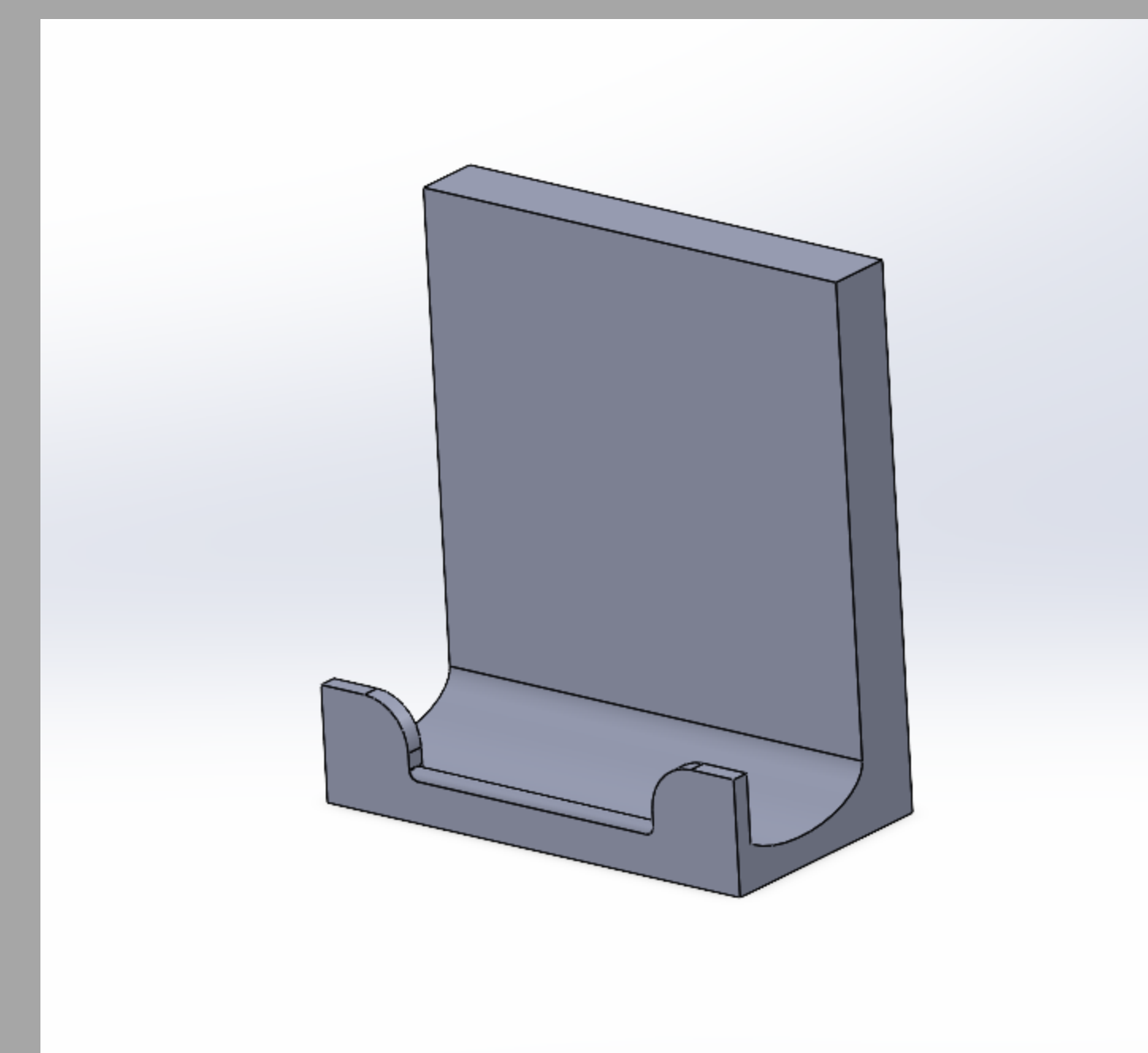### 3D Vibratory Feeder CAD Files

Vibratory Feeder Design and Function
- **Vibrations will cause punch caps to position in the same direction.**

Dead Nest Mechanism
- **Our dead nest is a channel that brings the caps down a track and into an easily accessible port to grasp the caps**

Future Goals

- Develop a stable code to ensure proper functionality of the bowl
- Conduct time studies to evaluate the success of the feeder
- Implement the dead nest mechanism
- Create training protocols to help employees adapt to the new features

Acknowledgements

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Meet the Team