Vibratory Feeding

- Operates by vibrating a surface in order to "bounce" parts along it
- Excellent for moving large volumes (hundreds) of parts at once
- The shape of the vibrating surface influences how parts orient and feed
- The vibration is primarily defined by the three parameters: frequency, angle, and amplitude

**FREQUENCY**
- How fast

**ANGLE**
- Which way

**AMPLITUDE**
- How hard

**Problem with Current Vibratory Feeding**

- Customers want higher volume for the same cost
- Higher volume assembly lines require faster part feeding
- Part motion is chaotic, can’t turn a knob to speed it up
- Must be able to rapidly test different parameters for different parts

**Vibration Angle**

- Is adjusted by changing spring angle. This is done by loosening 3 bolts on each pack, rotating them all together, and tightening back down.

**Frequency**

- Is adjusted by changing system stiffness. This can be quickly accomplished by swapping and reconfiguring spring packs.

**Multivariable Vibratory Test Platform**

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**Platform Overview**

- Four vibratory zones
- Flexible for many test setups
- Full control over relative position & angle of zones
- Rapid parameter adjustment
- Covers full parameter range of vibratory feeders

**How the Platform Operates**

- Like pushing a swing, little pushes build up
- At natural frequency, system accumulates momentum
- Adjust natural frequency to match desired frequency
- Four zones in pairs have independent adjustment

**Single Vibratory Zone**

**Four Zone Layout**

**Conclusion of Project and Impact**

- Design of platform is complete and handed off to AGR to be fabricated
- The rapid adjustment made possible by this platform will allow for much broader testing
- This platform will also allow for the testing of new tooling before full systems are built
- The learnings and developments from testing will increase speed and efficiency of feeding
- Improved feeding will contribute to getting more parts per minute off the line