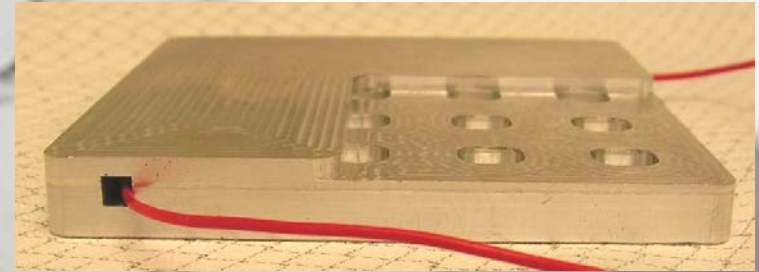
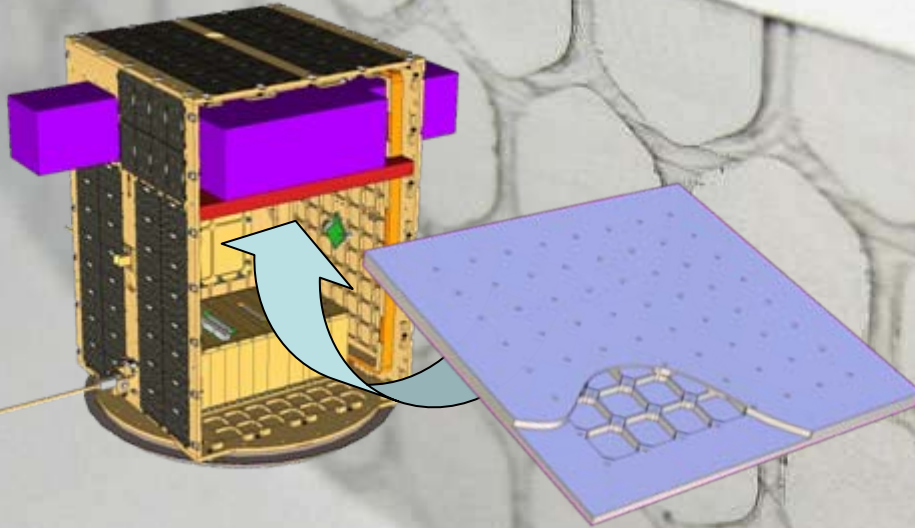


Structural Capabilities Using Ultrasonic Consolidation

Josh George

Motivation



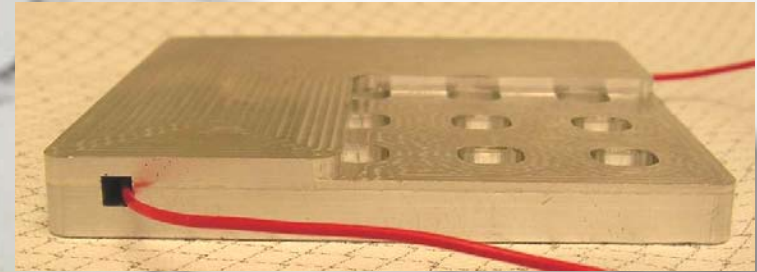
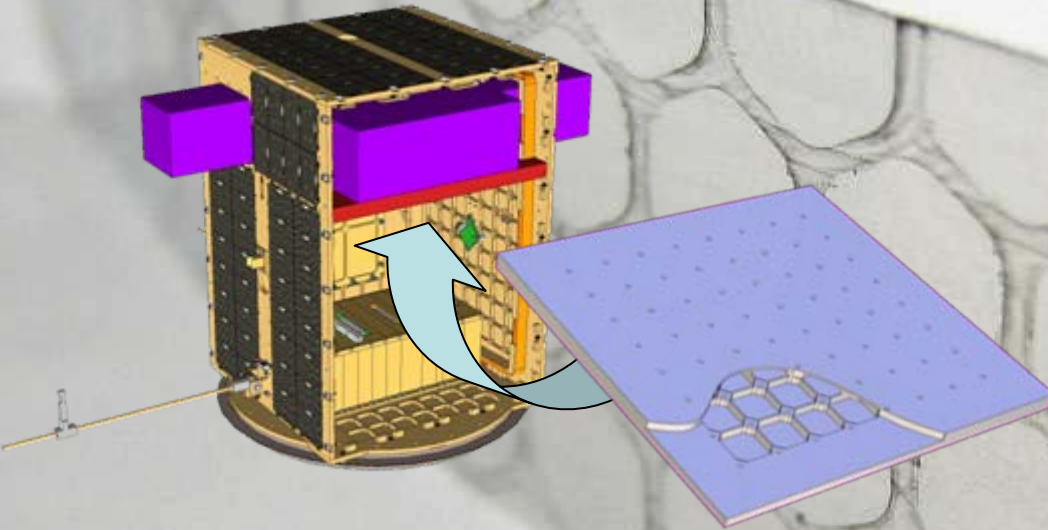
Benefits of Sandwich Panels

- High Stiffness/ Weight Ratio
- Multifunctional Capabilities

Drawbacks of Sandwich Panels

- Expertise/Precision Required for Assembly
- Potting Required for Attachment Points
- Dissimilar Materials at Joints
- \$\$\$ & Time

Motivation



Benefits of Sandwich Panels

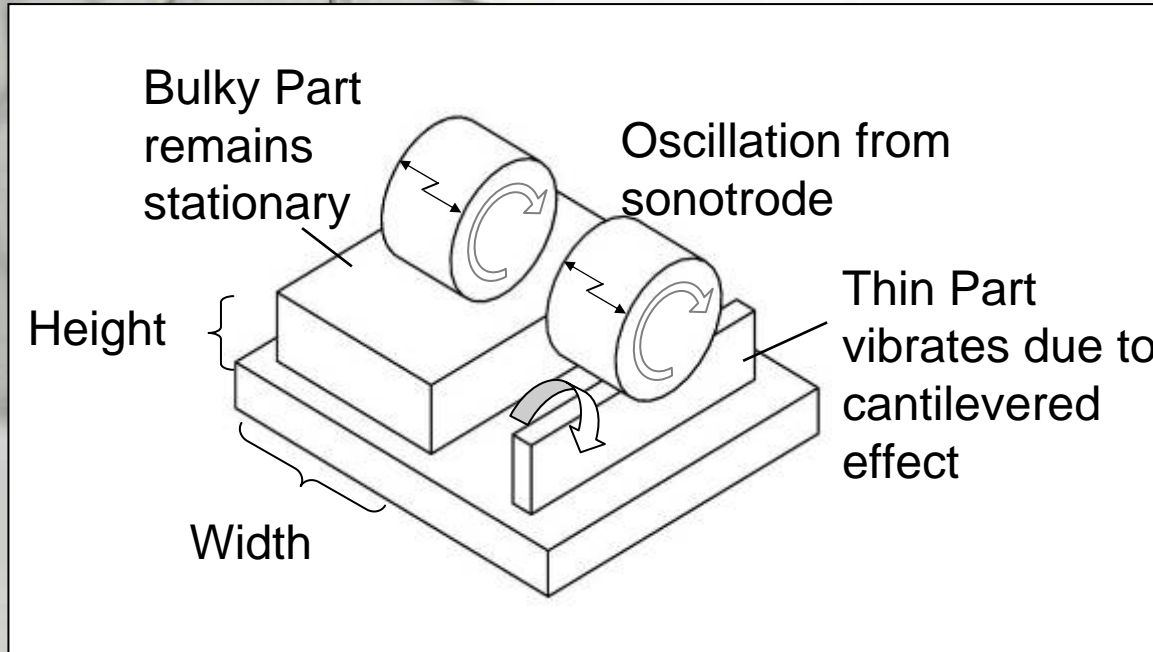
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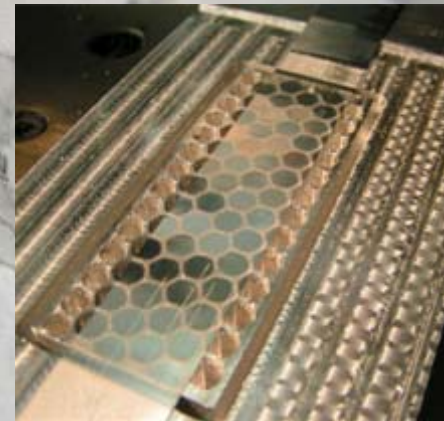
Ultrasonic Consolidation coupled with a CNC mill eliminates the drawbacks of sandwich panels and adds multifunctional capability with only a slight penalty in weight.

Issues



Solutions:

1. Support Materials
2. Rigid Design



Testing

