

PROJECT OVERVIEW:

Minimizing Food Waste During Transportation

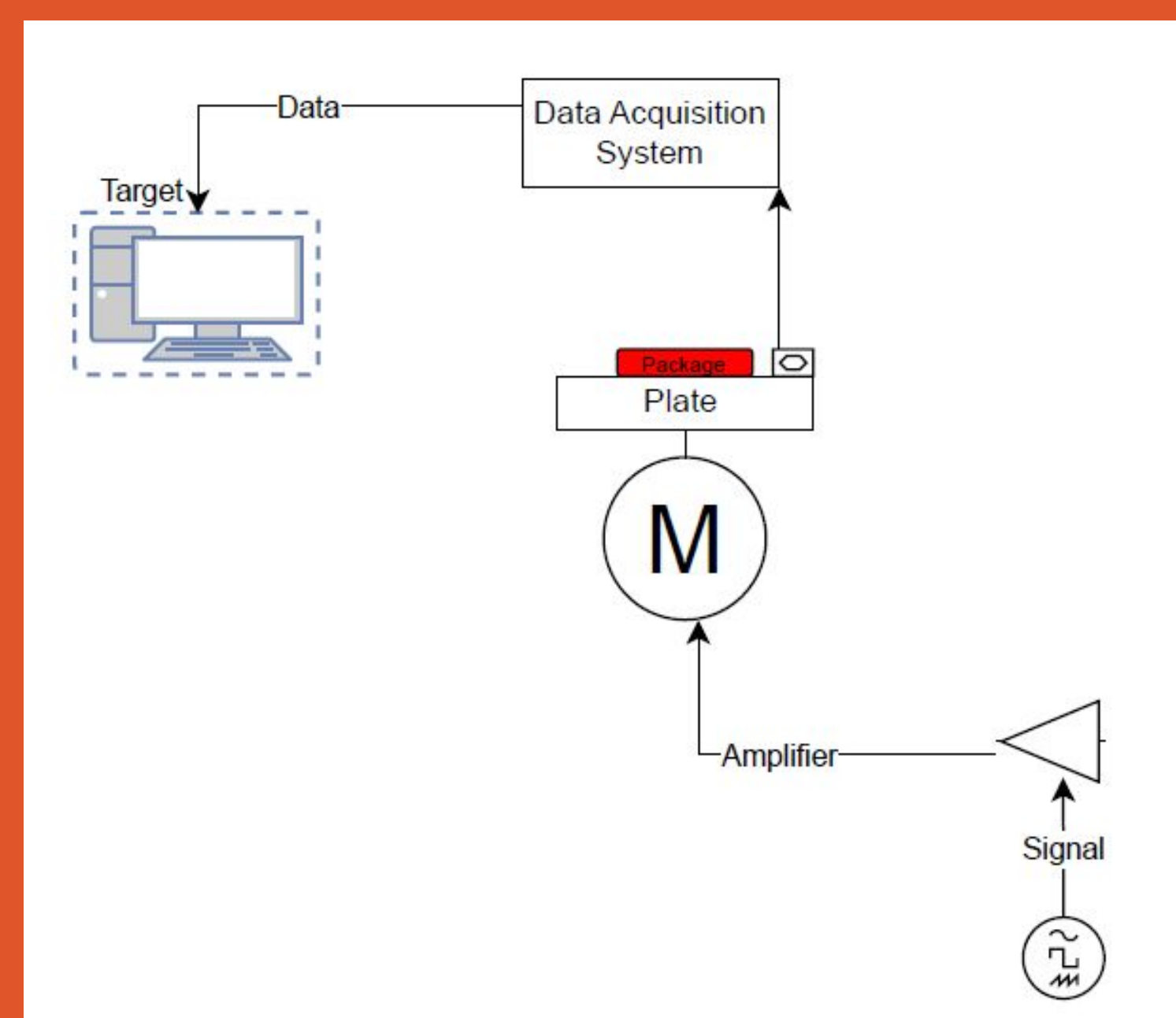


- 30% of food is wasted worldwide. Of that, approximately 7% - 15% of that food waste is attributed to transportation.
- Vibration during transportation causes damage to soft fruits, like strawberries.
- This damage leads to a shorter shelf life, increasing food waste.

TASK:

- Create vibration table system that simulates fruit transportation across highways.
- Controlled sweep sine signal
- Operate for 2 hours

SYSTEM LAYOUT:



Fruit Transportation Simulation

Department of Food Science and Technology

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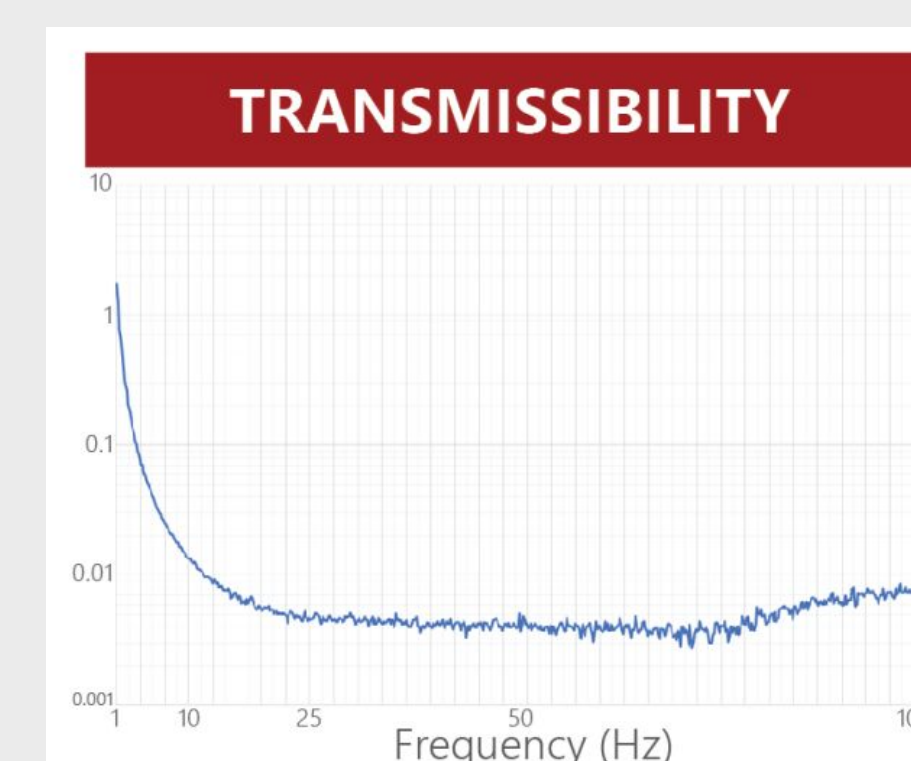


The System

Used by graduate students working to develop strawberry packaging designed to reduce damage to the fruit.

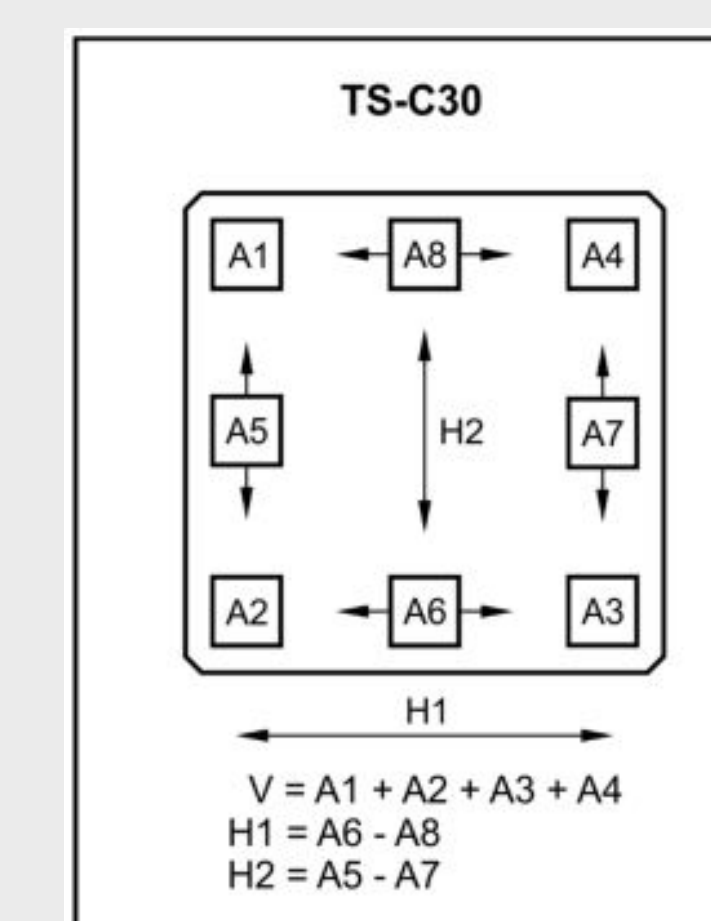
Components:

- Exciter box
- Shaker Table from Herzan LLC.
- National Instruments Data Acquisition System



Future Work / Investments

- Multi-axis vibration
- Randomized vibration spectrum (IST-3A)
- Larger motor

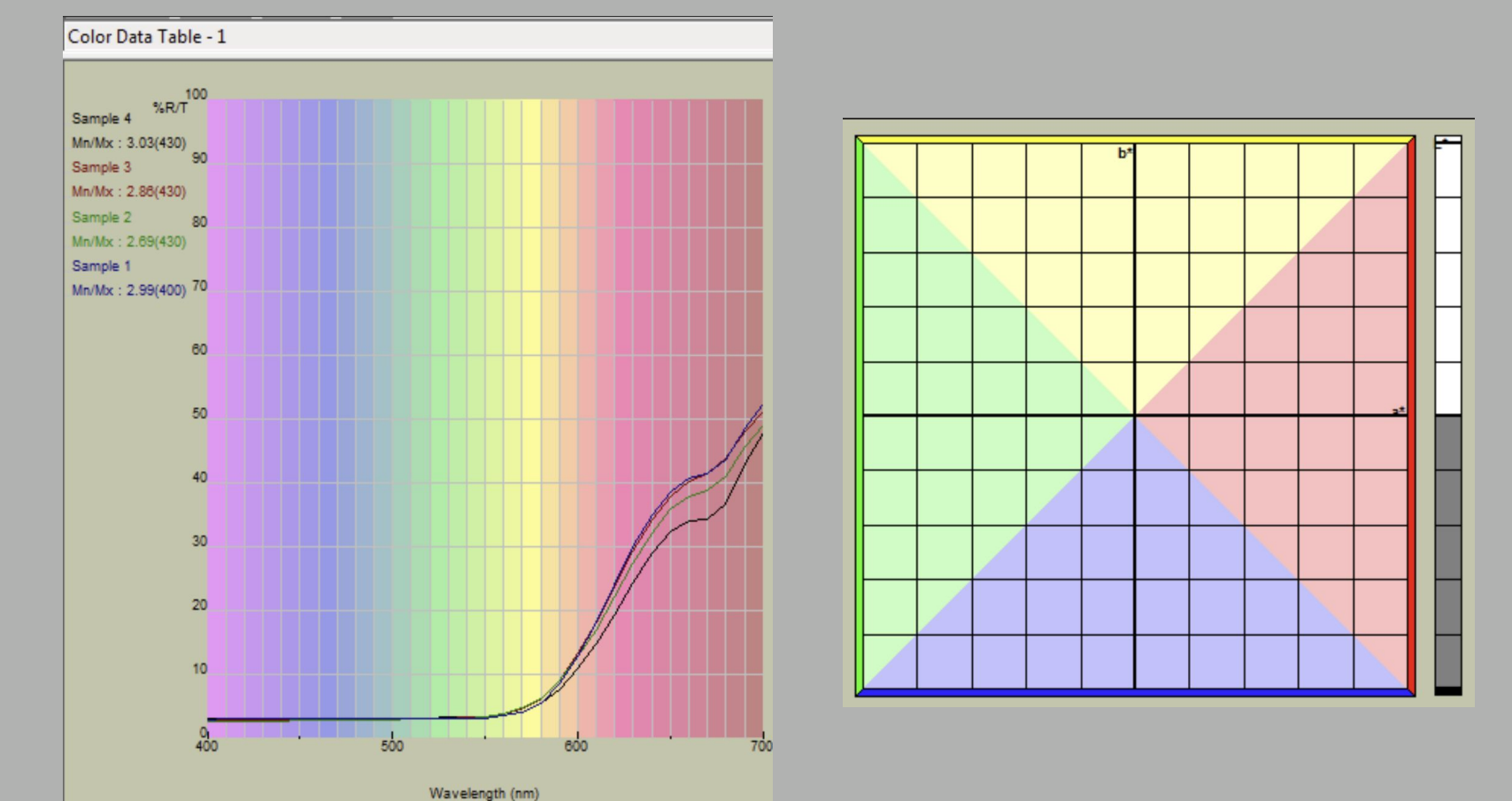


TESTING:

Strawberry damage assessment for frequency recommendations.

Color:

- Bruising of the strawberries causes them to turn a darker red, which is measured by wavelength.



Texture:

- Bruising causes strawberries to soften, which is measured in the lab by the force it takes to puncture the skin of the strawberry. This is seen as the peak on the graph below.

