ALLDET

Automated Liquid Level Detection

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Ryan Ladd - Team lead/electrical & mechanical design

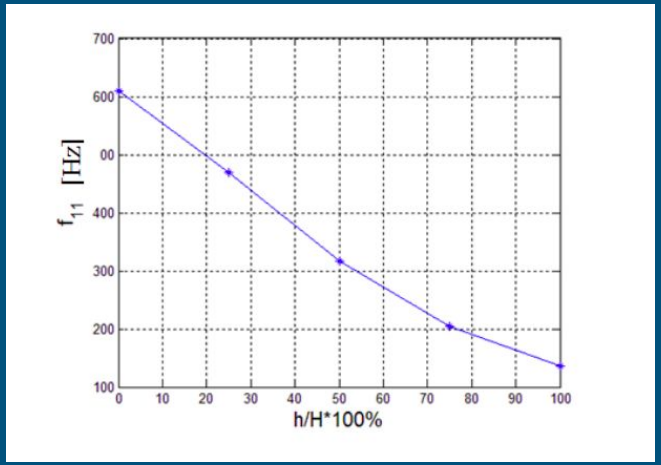
Everyone - Research/documentation

What problem are we solving?

- Currently no convenient way for restaurants and bars to determine how much liquid is left in containers such as beer kegs
- Not being able to easily measure liquid levels can lead to under/overstocking which can cut into profits
- Improve inventory tracking

Our Solution

- Utilize the natural resonance of the container
- Attach a device to strike the side of the container
- Use vibration sensors to detect the vibration frequency
- Interpret the liquid level based on frequency
- Record that data and transmit it to a mobile device
- Display the data to the customer via mobile application



*Farid, M., Levy, N., Gendelman, “Vibration mitigation in partially liquid-filled vessel using passive energy absorbers,” *Journal of Sound and Vibration* vol. 406, pp. 21–22, Oct. 2017.

Target customers

- We plan to adapt both business-to-business & business-to-consumer sales
- Main customers include: Restaurants, bars, breweries, and home-brewer
- Future development would allow opening up to other industries not related to food service (i.e. oil drums, flammable chemicals, etc.)

Sales & Marketing Strategy

- Allow initial customers to use the device at no charge to gain valid feedback
- We will mainly rely on word of mouth, live demos, social media advertising, and cold calls
- Premium subscription to app would allow the user access to advanced inventory and monitoring solutions

Competitive Advantage

- Current methods involve placing the keg on a scale and calculating liquid level by hand
- No competitors measure using vibration sensing
- Our non-invasive solution requires no physical lifting and the capability to measure multiple containers remotely