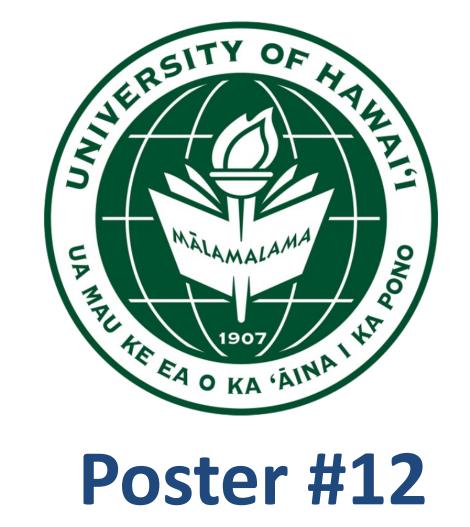# Attritable Sensor Data Collection on Ocean Platforms

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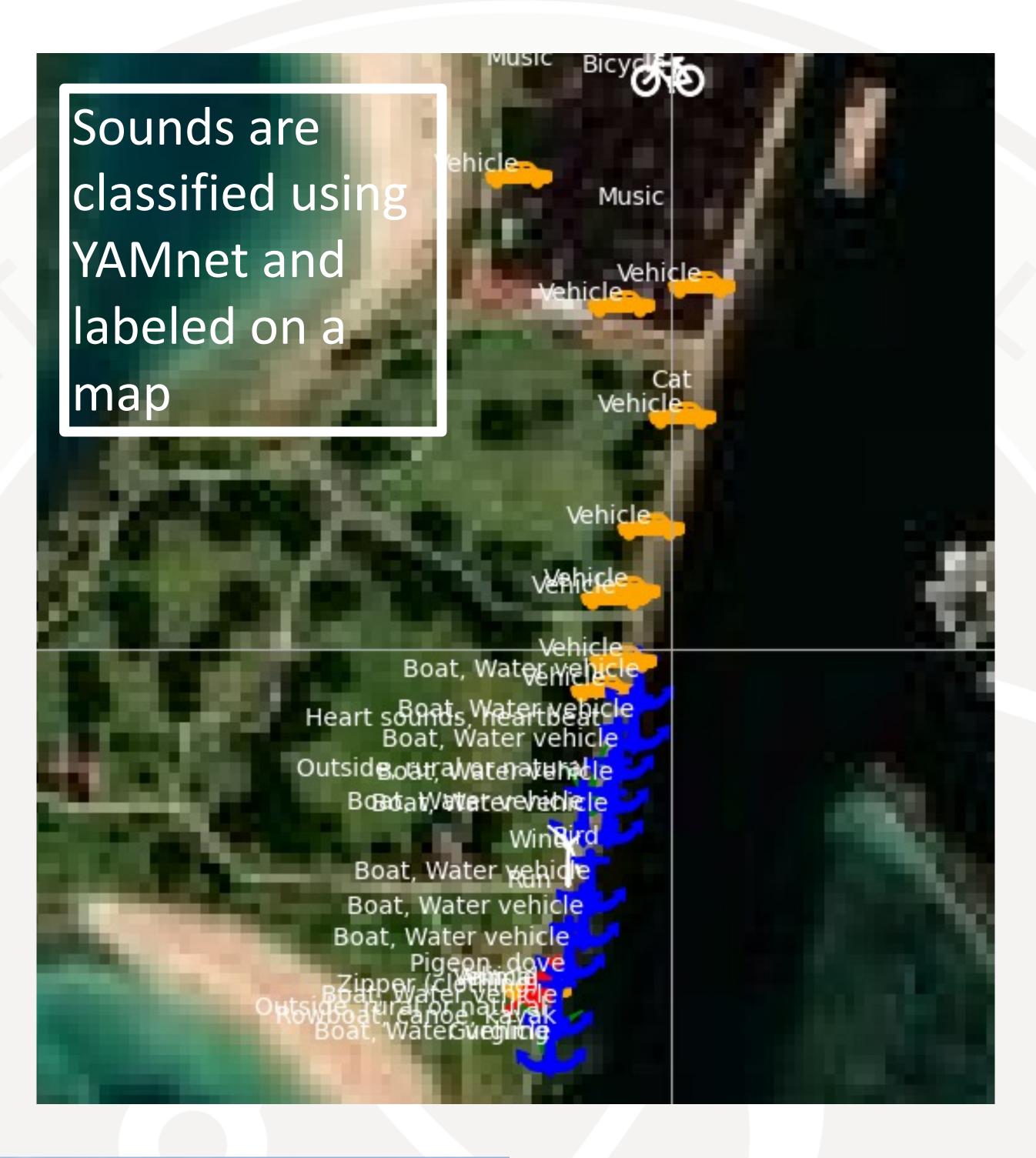
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Introduction

- Wave Adaptive Modular Vessel (WAM-V) was used as a mounting platform for 2 audio sensor stations
- Proof-of-concept to explore collection of signatures of interest with smartphones deployed on ocean platforms
- Observed and classified low-frequency audio signals with edge and cloud machine learning models
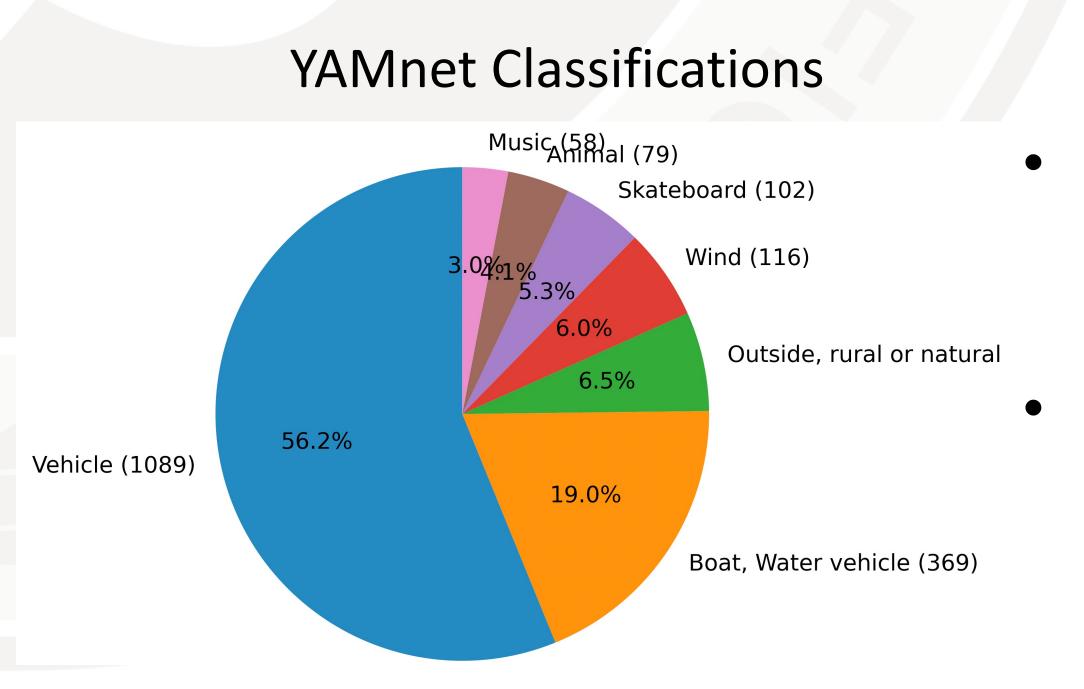

3D printed hydrophone housing

Results

Sounds are classified using YAMnet and labeled on a map

YAMnet Classifications

Vehicle (1089) 56.2%
Boat, Water vehicle (369) 19.0%
Outside, rural or natural 6.5%
Wind (116) 6.0%
Skateboard (102) 5.3%
Animal (79) 4.1%
Music (58) 3.0%

Mission Relevance and MTV Impact

- The ocean sensor platform is useful in detecting, monitoring and locating signals of interest to NNSA in ocean environments

Conclusion

- This technology can be used to monitor the audio produced by vehicles in areas of interest
- With the use of an autonomous solar powered vehicle, this monitoring system can be deployed in any ocean environment for extended periods of time

Next Steps

- Plan to establish a sensor array on board the WAM-V for locating signals of interest
- Deploy persistent smartphone monitoring station arrays on littoral and ocean environments