1. Project number:
S20-30

2. Project title (as will appear on the poster):
Hear4U

3. Team members:
Manish Kewalramani
Andy Wang
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4. Adviser(s) name(s):
Professor Anand Sarwate

5. Up to 5 keywords that will help to classify the project scope:
Auditory Processing
Machine Learning
Wearable Device
Concept Demo

6. Project abstract (up to 250 words) to be shared with judges:

Hearing aids are an extremely useful way to help the hearing impaired. There is an inherent futility, however, in attempting to capture the entire experience of human hearing in a way that allows those who are unable to do it to experience it. A solution to this would be to add functionality to the hearing aids until the full hearing experience can be simulated. Our proposal is to create a device that will listen for noises of interest and vibrate to alert the user of these sounds to simulate the way in which non-impaired people react to hearing keywords; specifically, in situations where the sounds of interest are quieter than other sounds. A machine learning algorithm will be trained to respond to the sound of a user’s name. A buzzer will be used to simulate a tap on the arm, analogous to a manner in which someone would attempt to get someone else’s attention. It is hoped that this demonstration would validate the usefulness of this device’s functionality in a way that would make it desirable to integrate into existing devices, such as hearing aids or noise cancelling headphones. Additionally, it is thought that the concept can be applied to aid people with other issues apart from hearing loss, such as auditory processing disorders or inability to focus.