Team Contributions: POC
Audio360

Team #6, Six Sense
Omar Alam
Sathurshan Arulmohan
Nirmal Chaudhari
Kalp Shah
Jay Sharma

Contents

This document provides a summary of each team member's contributions leading up to the Proof of Concept (POC) demonstration. The reporting period covers all work completed from the beginning of the term through November 2, 2025.

1 Demo Plans

The team will be demonstrating the core features of Audio360working in a simulated environment. The core features include direction detection of a sound source, where the system outputs the angle of arrival of the detected sound. The other feature is audio classification of atleast 3 distinct classifications. Demonstrating that these features work at a high level will allow the team to get validation from stakeholders who are hard of hearing ensuring that the solution effectively addresses their pain point of limited situational awareness.

According to the SRS [1], these features are intended to be deployed on a microcontroller integrated into a pair of smart glasses. However, the shipment of the glasses is scheduled to arrive after the POC deadline. While the team currently has access to the microcontrollers, the hardware setup and integration process require significant development effort. As a result, the system will initially be deployed in a simulated environment for the POC. In this setup, pre-recorded microphone array audio data will be used as input for the core algorithms. The team will employ pyroomacoustics [2], a Python based audio room processing library, to generate simulated audio input based on the spatial configuration and relative positions of the microphones and sound sources.

2 Team Meeting Attendance

Team meetings are held weekly to discuss progress updates, address blockers, and plan upcoming tasks.

Student	**Meetings**
Total	7
Omar Alam	6
Sathurshan Arulmohan	6
Nirmal Chaudhari	7
Kalp Shah	6
Jay Sharma	6

3 Supervisor Meeting Attendance

Supervisor meetings were held only when expert guidance was required, minimizing the number of scheduled sessions.

Supervisor's Name: Dr. Martin v. Mohrenschildt

Student	Meetings
Total	2
Omar Alam	2
Sathurshan Arulmohan	2
Nirmal Chaudhari	2
Kalp Shah	2
Jay Sharma	1

4 Lecture Attendance

Lecture tracking began on September 15, 2025. Lectures prior to this date were not documented, as the team and project charter had not yet been established. The team agreed that at least one member would attend each lecture and take notes, with Nirmal designated as the Note Taker. In cases where Nirmal was unable to attend, another team member served as a substitute. The team successfully ensured that at least one representative attended every lecture.

Student	Lectures
Total	7
Omar Alam	4
Sathurshan Arulmohan	5
Nirmal Chaudhari	5
Kalp Shah	2
Jay Sharma	1

5 TA Document Discussion Attendance

TA's Name: Rashad Bhuiyan

Student	TA Meetings
Total	3
Omar Alam	3
Sathurshan Arulmohan	3
Nirmal Chaudhari	3
Kalp Shah	3
Jay Sharma	3

6 Commits

Student	Commits	Percent
Total	283	100%
Omar Alam	33	11.7%
Sathurshan Arulmohan	142	50.2%
Nirmal Chaudhari	48	17.0%
Kalp Shah	31	10.9%
Jay Sharma	29	10.2%

Sathurshan's commit count is higher than that of other team members because GitHub registers a commit each time a developer merges a pull request related to documentation updates. This is caused by the continuous deployment bot automatically generating a commit when building and commiting the PDF documentation. Sathurshan has primarily been responsible for managing pull request merges on days when documentation submissions are due.

Furthermore, Omar has focused on hardware-related tasks, which are not reflected in the commit metrics. Similarly, Nirmal, Kalp, and Jay have undertaken research tasks for feature development that does not directly result in commits.

7 Issue Tracker

Student	Authored (O+C)	Assigned (C only)
Omar Alam	5	24
Sathurshan Arulmohan	132	56
Nirmal Chaudhari	7	32
Kalp Shah	13	21
Jay Sharma	0	24

Sathurshan has a higher number of authored issues, as it is the Leader's responsibility to create and assign tasks to team members for each milestone. This role distribution was agreed upon by the team, as outlined in the Development Plan document [3]. Additionally, Sathurshan has closed more issues than other members, having resolved the majority of peer review items at the time of the report (12 out of 20 closed issues).

8 CI/CD

Section **CI/CD** of the Development Document [3] describes the team's approach to implementing CI/CD for the project. At a high level, the CI/CD pipeline is used to automatically execute all team-developed tests, including unit and integration tests, and to build the source code using the target compiler. This process ensures that new code changes do not break or regress previously implemented functionality.

9 Team Charter Trigger Items

There have been no team charter trigger items to date, and the team has made good progress on the project. However, there is room for improvement in overall work ethics throughout the semester to ensure the capstone is completed on schedule. To address this, a GitHub issue has been created to revise the team charter and implement the necessary updates to support the successful completion of the project.

References

[1] S. Arulmohan, O. Alam, K. Shah, J. Sharma, and N. Chaudri, "System requirements specification," 2025. [Online]. Available: https://github.com/Team6-SixSense/audio360/blob/main/docs/SRS/SRS.pdf

[2] fakufaku, "pyroomacoustics," 2025. [Online]. Available: https://pypi.org/project/pyroomacoustics/

[3] S. Arulmohan, O. Alam, K. Shah, J. Sharma, and N. Chaudri, "Development plan," 2025. [Online]. Available: https://github.com/Team6-SixSense/audio360/blob/main/docs/DevelopmentPlan/DevelopmentPlan.pdf