

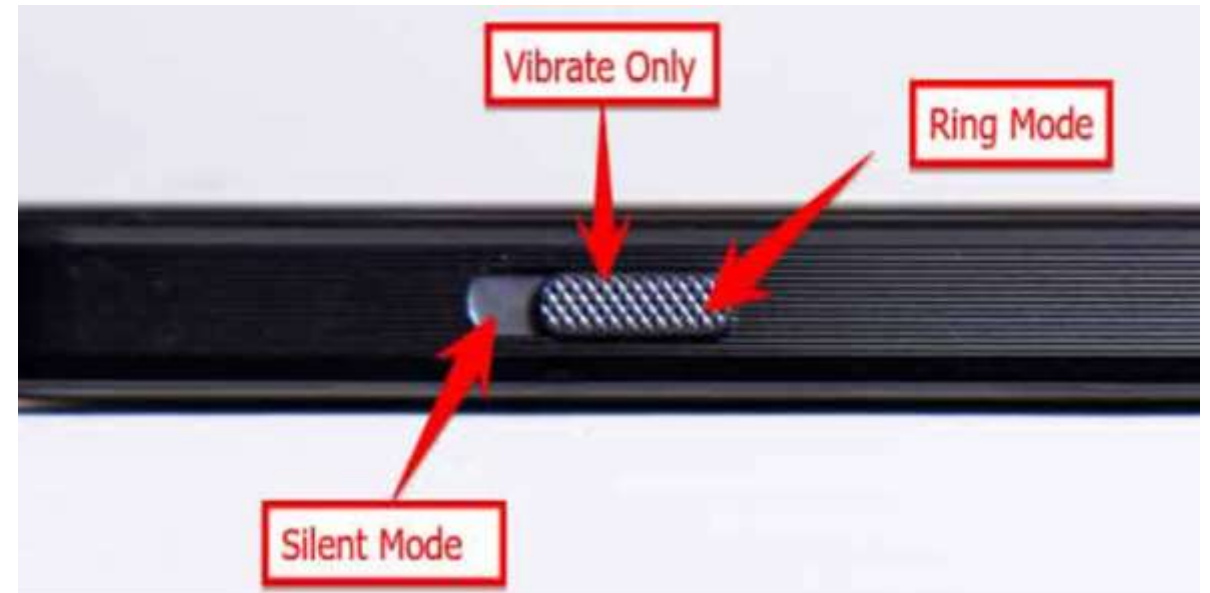
The background is a dark grey or black surface covered with a repeating pattern of lightbulbs. Most of the lightbulbs are small and drawn in a light grey, sketchy style. On the right side of the image, there is a single, much larger lightbulb drawn in a vibrant yellow-green color, also in a sketchy style. This larger lightbulb has a more detailed filament and a distinct base. The overall effect is one of many ideas, with one idea being significantly more prominent than the others.

Slider to Silent

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Problem statement

The existing technology in the smart phones makes its users constantly worry about their current audio profile for their ringer where they keep on constantly switching between audio mode from silent (to) do-not-disturb (to) ringing based on their current circumstances and disposition. Though, some manufacturers have provided alternate physical button/sliders on the device to control audio profiles, still it lacks automation in providing complete solution to its users. My solution will make use of various existing features/sensors in the smart phone to automatically determine which audio profile to apply at precise scenario.



Problem scenario:

Following are some of the real time scenarios where the problem occurs:

- When a person fails to silent his/her phone after reaching his office or school
- When a person fails to switch audio profile to do not disturb when attending his interview or in midst of serious meeting / discussion
- A person might have failed to switch his mobile to flight mode when in flight travel to avoid ground network interference
- A person might fail to switch back his mobile to normal mode after coming back from office/school
- Mobile ringtones may affect concentration while in the midst of driving

Solution Scenario:

The following are few techniques through which the audio profile can be effectively controlled without any direct/physical human interference

Accelerometer: This sensor detects the position of the mobile like facing upwards or downwards and can detect how fast the mobile is moving in linear direction.

- This sensor can be used to figure out if the mobile is in transit and potentially detect that its in travel and switch to silent mode
- It can also detect that the mobile is in constant state without any movement which denotes that the mobile is outside the holder's pocket and can switch the vibration on and off based on the location. It can prevent the mobile from falling if its placed-on table or at higher ground
- It can detect if the person is working out and can increase the volume to get the users attention

Solution Scenario:

GPS: This sensor provides the geographic location of the user

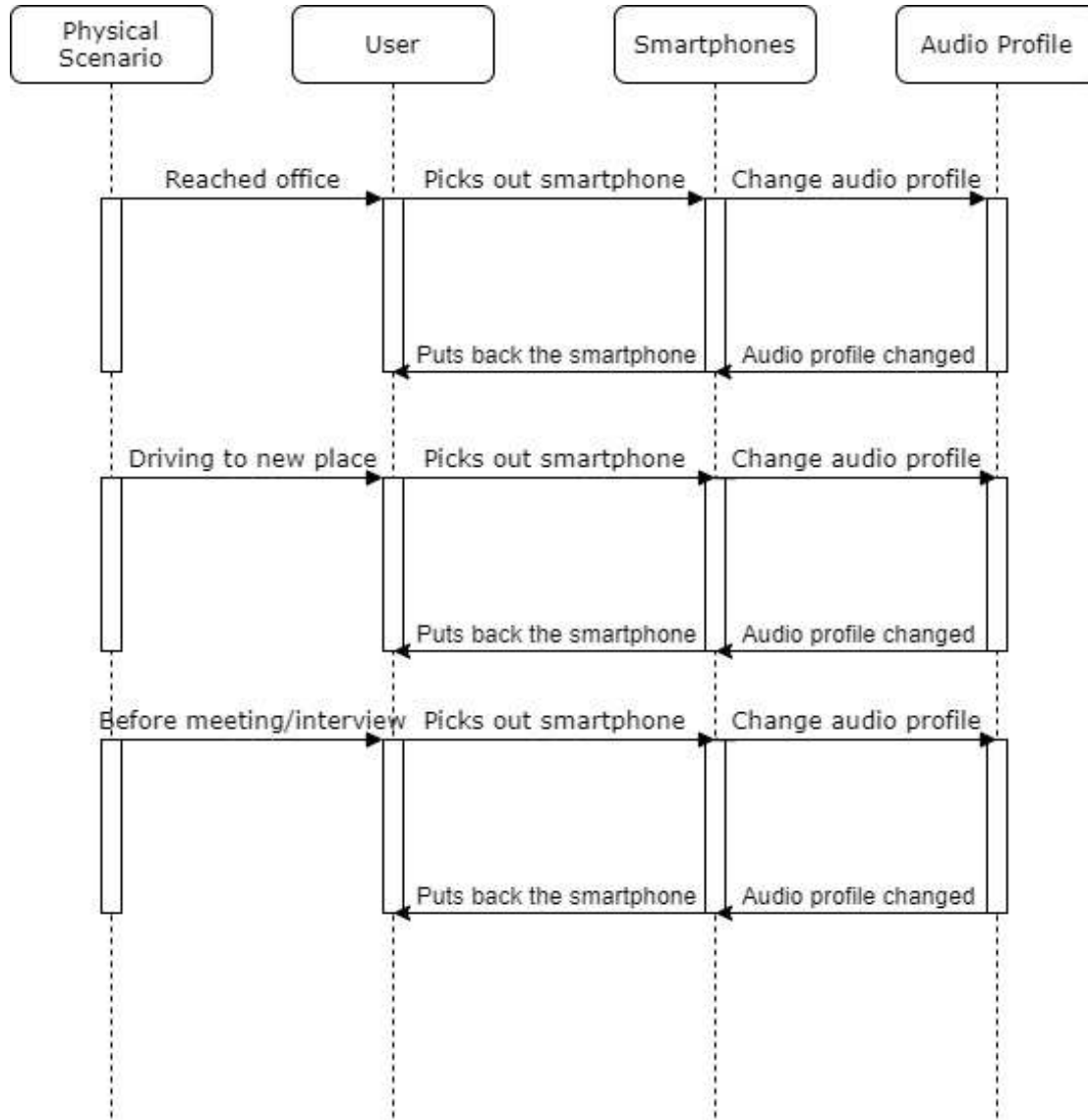
- It can be used to detect the exact location of the user and set the audio profile based on the location for example the mobile can be switched back to silent mode when reaching office or school and switched back to normal mode when returning.

Microphone: It detects and measure the loudness of sound

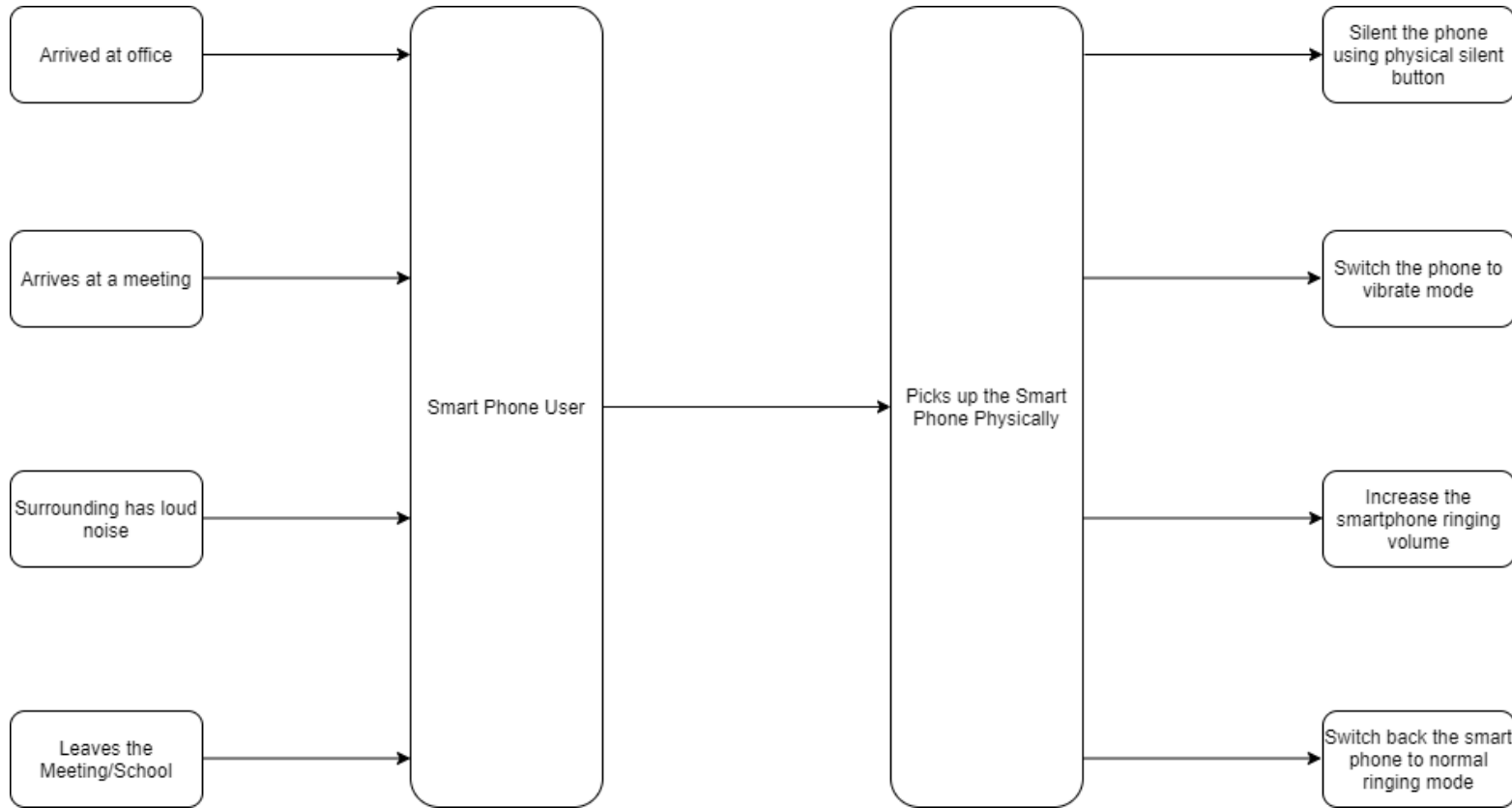
- This can be used to determine if the smartphone user is in silent environment or loud environment and can switch back the profile to silent to normal mode based on that. And adjust the volume.

Solution Scenario:

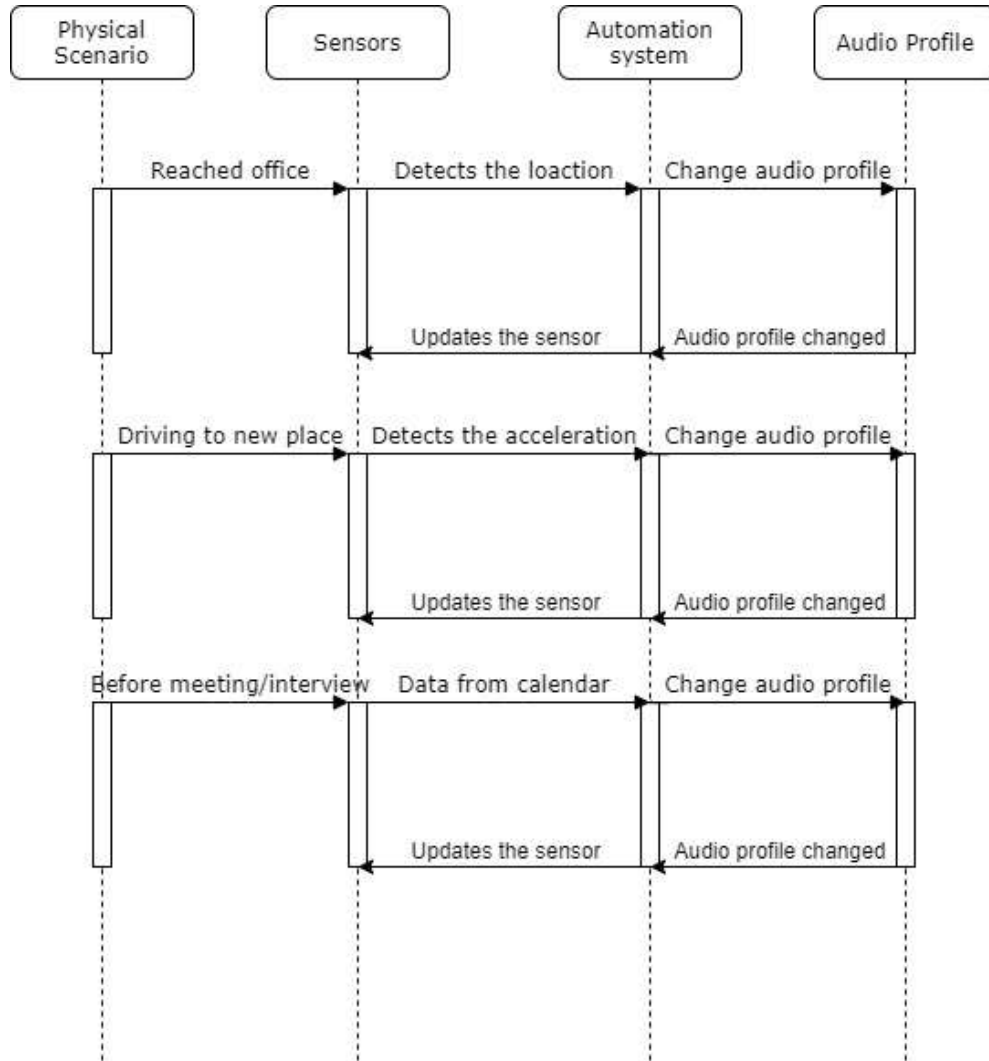
Calendar apps: The calendar app contains all the information and appointment details about a user which can be analyzed to determine if the appointment needs the audio profile to be modified. for example. If the user has an appointment for his job interview, then the audio profile can be automatically changed to do not disturb mode. Also, it can retrieve his flight details and can safely switch to flight mode when in flights etc.



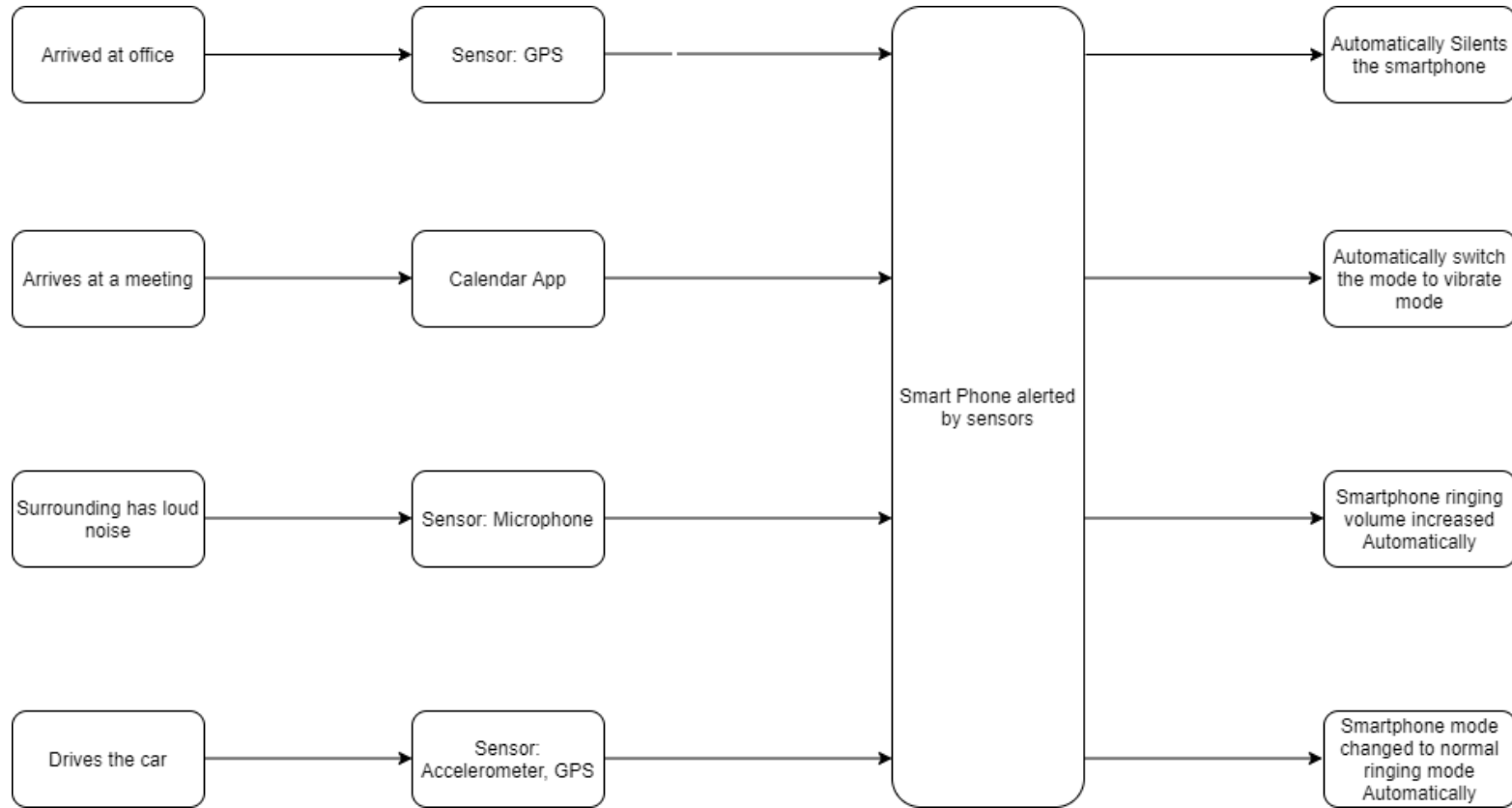
Sequence Diagram : Existing Scenario



Structure Diagram: Existing Scenario



Sequence Diagram : Proposed Scenario

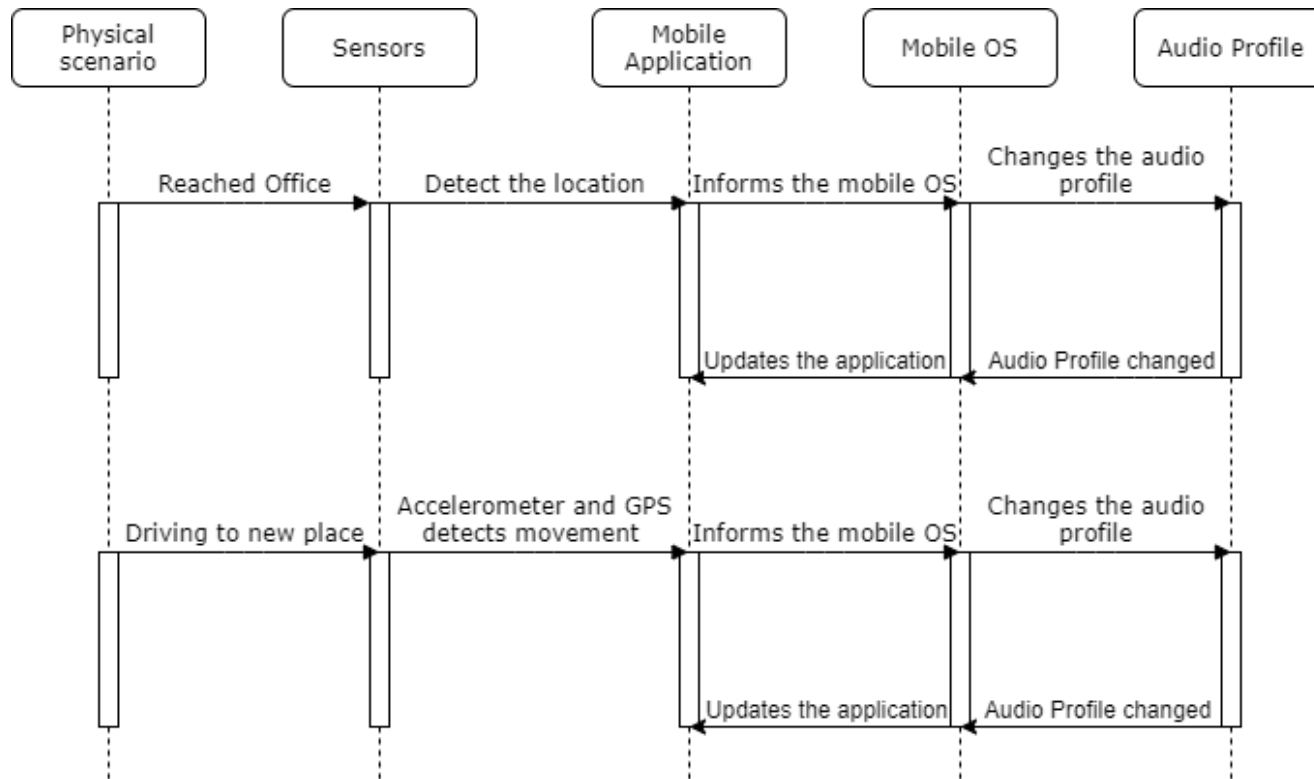


Structure Diagram : Proposed Scenario

Alternate Solution / Implementation method 1:

Standalone Mobile Application:

- The proposed solution can be implemented as a standalone mobile application to control the audio profile independent of platform
- This application can be rolled out in all major mobile platforms like iPhone and android.
- The mobile application can be provided with options for users to customize the ringing feature by themselves
- The data collected from the users from both platforms can be used to improve the automation model of the system

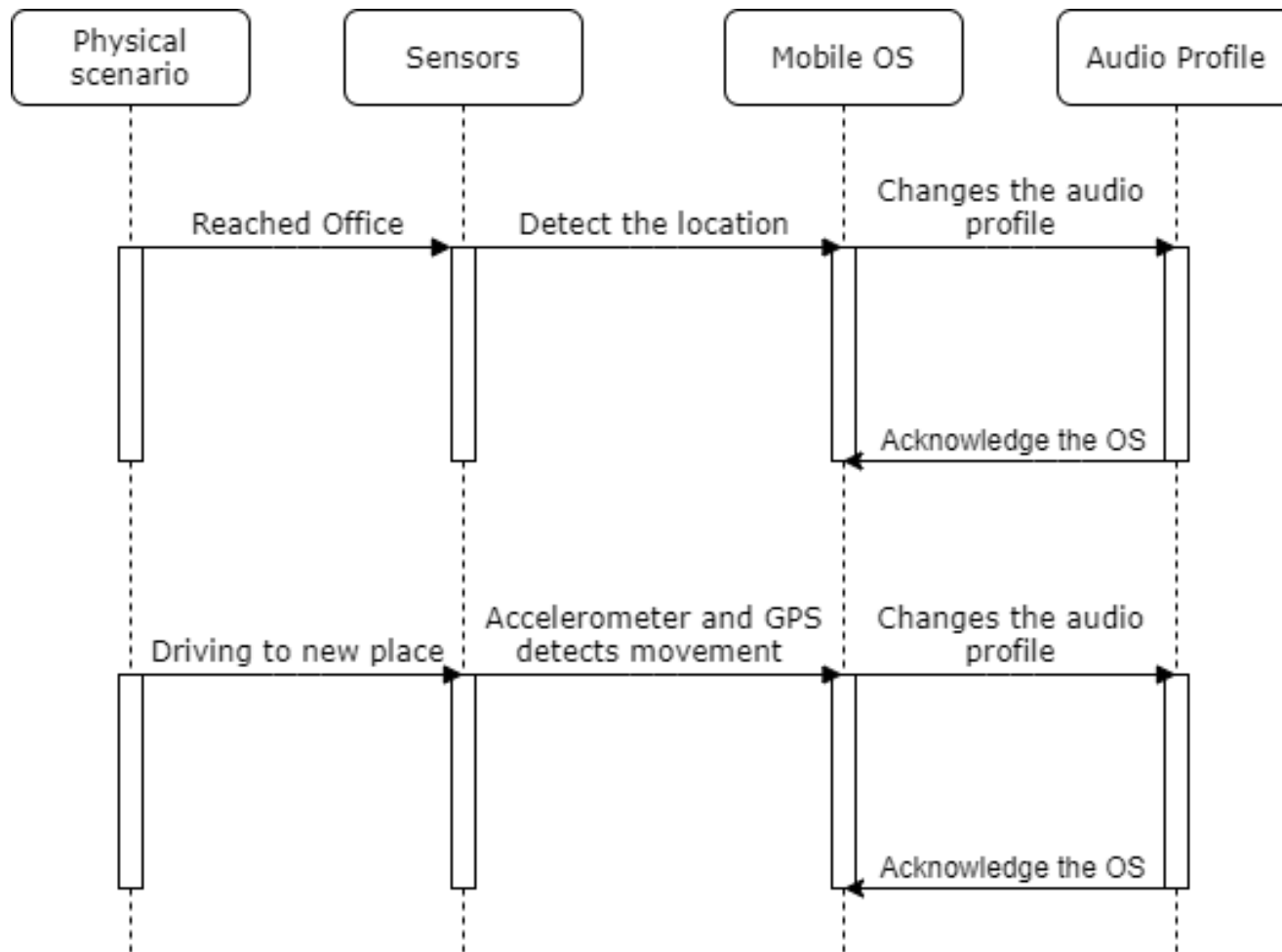


Implementation Method 1 : Sequence diagram

Alternate Solution / Implementation method 2:

Built-in with existing platform:

- The proposed solution can be implemented as a part of existing platform, thus implementing can lead to removal of physical silent sliders on the sides of the device providing more space to other features
- This feature can be widely implemented in quick span of time, since the platform owners (Apple, google) already has abundant user data which can be effectively used to train a model to automate the solution
- This implementation can also be useful for the platform to learn more about the user behavior and the data can be used to implement a better feature for user in future updates



Implementation Method 2: Sequence Diagram

Cost Analysis – Development Phase

Application Development cost:

- Various costs are involved during the development phase which includes software license, developers, testers, physical equipment's like computers, data storage device, hosting servers, office rent & maintenance, and marketing.
- Following are the **per year** expenditure estimate for the company
- Software license: 1000\$
- Employees (Developers, testers, business managers): 500,000\$
- Office rent & Maintenance: 15,000\$
- Equipment's: 30,000\$
- Digital Marketing: 50,000\$
- Other expense: 10,000\$
- **Total: 606,000\$**

Revenue Analysis – Post Deployment

Post deployment revenue & Profit:

- In intention of reaching wide range of user base the application is released as **free-to-use** and **Ad-free** with certain paid premium features
- Though this model doesn't attract huge revenue in the initial year but makes sure that the application reaches wide variety of user base. Since, the revenue can be obtained through user data and premium features sales.
- The company should focus on : **Adoption rate, Churn rate, User engagement** and **premium features**
- Estimated app user downloads in all platforms in 1 year: 1.5 million
- Estimated premium downloads: 50,000 (5\$ / download)
- Profit from premium feature downloads: 250,000\$
- Estimated profit from sale of user data: 500,000\$
- Year 1 **Revenue**: 750,000\$
- Year 1 **Profit**: 144,000\$
- Year 1 Estimated **company valuation**: 5 million \$

Success metrics - Quantitative

The following are the quantitative metrics that would be used to measure the success of my solution:

- ❑ **Adoption Rate:** Number of users have installed my application in different time segments, 1 day, 1 week, 1 month, 6-month, 1 year.
- ❑ **Churn Rate:** Number of customers keeps on using my service before un-installing
- ❑ **Data Collected:** Since user data can be monetized amount of data collected can be very useful
- ❑ **Premium adopters:** Number of customer prefer paid premium features
- ❑ **Value of data:** How much value the data brings in as revenue to the firm
- ❑ **Schedule:** How effective are the company in delivering the product in mentioned time.

Success metrics - Qualitative

The following qualitative metrics will be used to measure the growth of the company as a whole

- ❑ **Employee satisfaction:** How satisfied the employee is on working on developing and deploying my solution
- ❑ **End-User satisfaction:** How satisfied is my end user on using my application
- ❑ **Team coordination:** How coordinated are the teams working in the company
- ❑ **Robust Architecture:** How robust is the architecture of the business and the application system
- ❑ **Understanding user requirements:** How quick in providing better customer service in fixing issues and updating features of user interest
- ❑ **Documentation:** How effectively the entire process is effectively documented