Max - Quentin - Thomas - Clementine - Léo - Louis

# Functional Specification

**Stake holder:**
ALGOSUP

**Project and scope:**
We have to make a device that recognizes whether people in a room speak English or French and warn them when they speak French.

**Use case:**
Frank wants his students to speak only in English. He could use the device to warn the students whenever they start speaking French.

**Requirements specs:**
The project needs to be able to listen to the room around itself. It also need to be powerful enough for sound recognition or an internet connection to a server.
To train the AI, we need a large amount of voice data.

**Possible Risk:**
Privacy would be a big aspect of the project, as it will record all conversation.

**Solution overview:**
How to get data:
* We envision two ways to collect data for machine learning.
The first method would be to listen to conversations in ALGOSUP. We would achieve this by setting microphones in project and English rooms. That raises the problem of listening to the data to label the data as English or French appropriately. Listening to recording would pose privacy issues as well as be time-consuming. On the flip side, it would allow the AI to recognize heavily accented English from french.

* The second method is to take data from an online sound database. We could overlap some sounds to simulate a classroom's brouhaha. This method would provide us with much more already sorted data. However, the AI might have difficulty recognizing accented English. A data set we could use is https://commonvoice.mozilla.org/en/datasets

Privacy and confidentiality:
We would try to save as little sound data as possible, deleting all recordings as soon as they are no longer needed. We could also make it so that nobody could access the data by encrypting them. Again to further secure the device we could make it entirely local to minimise interception risk.