**Team G**

**ABSTRACT**

Noise pollution also known as environmental noise or sound pollution, by term is the propagation of noise with harmful impact on the activity of human ar animal life. It has been already proven by various institution such as the World Health Organization (WHO), that these environmental noises can have a significant effect to our health. Due to these reasons, the health impacts of noise pollution have become a growing concern among both the general public and policy makers. This project is done in order to provide a practical and efficient way to collect and provide data to our customers.

**Introduction**

Despite Japan’s international image as a country of serene temples and quiet gardens, according to 2018 report by the World Health Organization, Japan is one of the noisiest countries in the world. On October 2018 WHO have released ‘WHO Environmental Noise Guidelines for the European Region (2018)’[[1]](#footnote-1) providing convincing evidence of noise pollution being one of the top environmental hazards to both physical and mental health. Moreover, the document provides a guideline of recommended noise decibels(dB) (day/night) for Road traffic noise(53dB/45dB), Railway noise(54dB/44dB), Aircraft noise(45dB/40dB), Wind turbine noise(45dB/none), and Leisure noise(70dB). However, the legal average limit in Japan is about 70dB which is way above the number suggested by the WHO. As shown by the above regulation, people living in Japan are not free from noise pollution.

**Problem formulation**

As shown above, people living in Japan are easily exposed to danger of environmental noises. As a student of Ritsumeikan University, our research team realized that noise pollution can be a major problem for the students of Ritsumeikan University, due to various circumstances. For the problem formulation of this project, it is important to have a standard noise indicator. From a scientific point of view, a condition of a best indicator is which performs best in predicting the effect of interest. Therefore, considering the orientation of our research, measurement of the sound will be done on the noise indicators of Lden and Lnight. Furthermore, the measurement targets are limited to road traffic noise and railway noise, which directly or indirectly affects the lives of students.

**System description**

This study focuses on creating a system structure that collects and processes environmental noise data. For this system, target customers are the ones who needs the noise data, including policy makers and city architects. As for data measurement methods, noise indicators (Lden and Lnight) will be used, with the measurement range limited to road traffic noise and railway noise. As a measurement tool for data, we will use the objects' cell phones. Moreover, an application will be developed for measuring and communicating data. The app will incorporate functions such as Global Positioning System (GPS), noise measurements, and data delivery. Cloud computing techniques will be adopted as the data-transfer manner. Through the collected sound and location data, the team will map the data through an algorithm which effectively processes the data. Through this process, meaningful research data is provided to the customers.

**Project description (description of prototype)**

As a prototype project of the whole system, the research is focused on a smaller measurement range. For the measurement range, it is limited to road traffic noise of Minami Kusatsu, near Ritsumeikan University. In case of measurement method, it will be simplified to sensor using micro-computer, and the noise indicator for the measurement will be same as the main system, which is Lden and Lnight. Using the collected data, mapping progress will be done with Geographic Information System (GIS) programming.

1. <http://www.euro.who.int/en/media-centre/sections/press-releases/2018/press-information-note-on-the-launch-of-the-who-environmental-noise-guidelines-for-the-european-region> [↑](#footnote-ref-1)