Chapter 1: Introduction.
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Ideally, doing an observation for social experiment should not require the social scientist to set up an artificial environment, unless it is meant to. The problem with traditional method of data gathering is that the technologies, those are used to leverage the process, make the observation less natural. Moreover, the process is not scalable for multiple instances of data gathering. Specifically for naturalistic kind of social observation, the most ideal practice is to keep the environment untouched as well as having ubiquitous method for data gathering. However, the latter part is, traditionally, contrary to the distance within the observation object and the social scientists. There are two sensible solutions for this problem. The first solution is to have both social scientists and their data gathering tools to be outside of the observation environment, let say this is similar as a park ranger using binoculars to observe wildlife from watch tower. Whereas, the second solution is to have both social scientists and their data gathering tools blended into the observation environment. With, nowadays, everything can be connected into the Internet, observation can be done in any part of the world. Now the problem, then, how to make the social sensor that blends into the observational environment. Specifically, for established and closed area like conference or office environment, I set my spotlight on developing a wearable social sensor as an ubiquitous data gathering tools.

There are two main inspirations for this project: Sociometric Badge and Rhythm Open Badge. Historically, Sociometric Badge is the latest attempt to create augmented name tag that is used in busy teamwork oriented place like in general office space or meeting room. The development of this badge looks back into 1992's Active Badge from Olivetti Research as its root inspiration. After through DIY - approach iterations, Sociometric Badge is now trying to set off as the first commercialized wearable device to enhance how people interact to each other.

Since Sociometric Badge went commercial, there are little to no documentations available on its recent development. This suggests the main motivation for Rhythm Open Badge. I think, as far as similarities on features, Rhythm Open Badge is an open solution for Sociometric Badge. There are codes, schematics, and documentation available. However, looking at Rhythm Open Badge project repository the tools used to make one are not common. The first version of Rhythm Open Badge uses RFDuino and programmed with Arduino C as its development suite. Whereas the its latest version uses nRF51 and coded in C. After comparing each keywords in Google Trends, currently, between nRF51 and RFDuino has 26:10 interest over time, which means that nRF51 is more popular thing to search. Now comparing nRF51 to recent popular development boards between Arduino Uno, Raspberry PI 3, Raspberry PI Zero, and nRF51 results in 16:42:25:0. Although RFDuino is a modified Arduino with focus on radio communication, I never heard nRF51 before. However, the result from Google Trends suggests that nRF51 is indeed unpopular choice compared to other popular development boards.

The study of social sciences live in different spectrum to knowledges necessary to make Rhythm Open Badge. Hence, in case social scientists want to leverage their social observation with such tool like Rhythm Open Badge, they need to find another person that has experiences with the components and the tools those are used to make Rhythm Badge. Considering the low search queries on tools those are used to create Rhythm Open Badge from Google Trends, finding such person would be an uneasy task.

This project is set to please both makers and those who wants to do social observation in closed group. The scenario is that for both makers and the social scientists to work together to make a tool similar to Sociometric Badge. With regard to the Rhythm Open Badge, the components and tools chosen for this project need to be as accessible as possible to the makers in term of how easy they are to find and to be studied. This project aims to kick start the development by setting an example of an alternative Sociometric Badge for both makers and social scientist that can easily be tweaked based on their needs.

This paper start with the State of the Art of previous to recent implementations. Then, this paper defines who are the user group and the goal for each user groups. Ideally this project would like to satisfy all possible user groups. However, since I am also inside a user group, there will be bias, although I will try to keep as neutral as possible. After the design goals are determined, then the next thing to formulate is the Project Requirements. Here, I will define limitations, aspects those are not being part of this project and the reasons. Furthermore in Project Requirements, I will discuss my tools of choice and why it is better than the other options. The next chapter will discuss about project implementations. These implementations will be based on the complexity of the result. There are minimal implementation for testing, realistic implementation, and ideal implementation. The last lengthy chapter will be about testings and its results. Before concluded in final Advice for Future Works.