**Chapter 1**

**THE PROBLEM AND ITS SETTING**

**Introduction**

Technological University of the Philippines is considered as the premier state university of technology education in the Philippines. It is, by far, can be proven by professors and students by TUP. However, having considered as a premier state university of technology education, there are still such problems that could be set as a subject for automation. One of these is the bulletin board.

The project of Development of Info Board using Raspberry Pi helps professors and their students to be updated easily. It can display important messages, reminders or announcements that can be seen by students or professors within the building. Also, professors that are not inside the campus can still send messages to Info Board because of the GSM module attached in the device. This project can help posting public announcements a lot easier than using papers and pens as a bulletin, for it only uses less resources and it is ever-ready.

**Background of the Study**

As years goes by, it is clearly seen how technology evolves within TUP. It can also be seen how students and professors help each other to keep progressing in fulfilling automations inside the campus. However, there are still minor problems that exist within the campus that if are studied deeply, the possible solutions to these problems could help maximize the use technology and may save a lot of resources and energy.

Faculty members of TUP are commonly busy and are also working off-campus. For this apparent reason, they can hardly post announcements and they will need to ask a faculty member (who is present in school) to disseminate the message to students or co-faculty members.

Public announcements and updates in TUP are only posted using papers and pens. However, a faculty member needs to be present in school to write and post it; or if ever they are not present in school they may ask assistance from someone who is present but that commonly leads to misunderstanding.

The main purpose of the Info Board is to post public announcements along the hallway directly from the sender through SMS. Since the project is GSM-based, messages received by the device can be posted exactly from what was sent by the faculty member. Also, most professors use SMS for communication; which will not make it a problem for them to use the device.

The Development of Info Board using Raspberry Pi will help display and disseminate messages clearly. It is highly accessible anytime anywhere in the country, plus, it may help lessen paper wastes in school.

**Objectives of the Study**

The general objective of the study is to develop Info Board using Raspberry Pi for Technological University of the Philippines.

Specifically, the study is aimed to

1. Design an Info Board using Raspberry Pi with the following features:
2. GSM – support device which can transfer messages using SMS
3. Raspberry Pi – project which may store huge amount of data and memory
4. Arduino to Raspberry Pi connection to be more responsive and efficient in the process.
5. Enabled with text messages using GSM to send information to the Raspberry Pi
6. Display messages and announcements in a two-line scrolling Info board
7. Create the Info board using:
8. C Programming Language
9. Python
10. Raspbian OS
11. Raspberry Pi 3 Model B
12. GSM Sim800
13. Test and improve the Development of Info Board using Rasberry Pi in terms of:
14. Responsiveness of the device in sending messages from the system to the users.
15. Real-time Application of the sending messages and displaying announcements.
16. Display/UI of the message in the info board.
17. The accuracy of the device in showing or displaying letters in either uppercase or lowercase.
18. Determine the level of acceptability of the developed Info Board using Rasberry Pi using TUP Evaluation Instrument for Prototype Develop.

**Scope and Limitations of the Study**

The process of this device will start with GSM. Where the user will send a message to this device and the device will convert it to SMS. The scope of this thesis is when a professor input an announcement in the system and the information will automatically appear in the Info Board. Regardless of the distance this device can send a text as long the SIM card is originated as the local network.

In using this system there are some limitations. First, a minimum memory capacity of GSM has. It can only store a few numbers of messages depending on its length. Second, the Info Board is a two-line display board which limits the display of the announcement in two lines. Third, for the security purposes only authorized person or the Professors can use the system. Lastly, the system will work through the local network’s signal.

**Significance of the Study**

In our generation, everyone knows what a prominent role technology plays in our society. It became such an important aspect in our lives with all of the different ways it can help us. The study focuses on how we can improve the communication of the professors and the students of the university. This study helps the professors easily announce even they are not in the premises without any hassle. And also, helps the student easily caught announcements without wasting their time waiting for the notice of the professors.

This might be a step up of our university to consider as more modernize when it comes to technology, among the state universities in Manila.