# **QUEZON CITY UNIVERSITY San Bartolome, Novaliches, Quezon City Bachelor of Science in Information Technology RESEARCH PROPOSAL MS102 – QUANTITATIVE METHODS** QCU LOGO PNGIT Logo

**Group# 5 Section:SBIT-3G**

| **Proposed Research Title:** QC Bus Tracker: A Collaborative Planner System for QCU Students | |
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# **Introduction**

Many QCU students rely on the Libreng Sakay bus, but long waiting times and uncertainty about bus arrival and seat availability cause inconvenience. This leads to overcrowding and wasted time.

To address this, the study proposes the QC Bus Tracker, a system that uses GPS to track the bus and allows the driver or conductor to update seat availability manually. This will help students know when the bus is arriving and if seats are available. By providing real-time updates, the QC Bus Tracker aims to reduce waiting times and improve the commuting experience for QCU students.

**Background of Study**

Quezon City University (QCU) students rely on the Libreng Sakay bus service for free and convenient transportation. However, long waiting times and uncertainty about bus arrival and seat availability cause inconvenience. Students often wait without knowing when the bus will arrive or if they can still get a seat, leading to overcrowding and wasted time.

To address this issue, this study proposes the QC Bus Tracker, a system that provides real-time bus tracking and seat availability updates. The system will use GPS to show the bus location and allow manual seat updates by the driver or conductor through an app. This will help students know when to expect the bus and whether there are available seats before heading to the bus stop.

By improving access to real-time information, the QC Bus Tracker aims to reduce waiting times, improve trip planning, and enhance the overall commuting experience for QCU students.

**Statement of the Problem**

This study aims to address the following questions:

1. What challenges do QCU students face with the Libreng Sakay bus service?

2. How can GPS tracking help students know when the bus will arrive?

3. How can seat availability monitoring improve passenger convenience?

4. How effective is the QC Bus Tracker in enhancing the commuting experience of QCU students?

**Hypothesis:**  
 The implementation of the QC Bus Tracker system, which provides real-time bus location and seat availability updates, will significantly reduce waiting times and improve the commuting experience of QCU students.  
  
**Null Hypothesis:** The implementation of the QC Bus Tracker system will have no significant effect on the waiting times and commuting experience of QCU students.

**Purpose of the Study** The purpose of this study is to develop the QC Bus Tracker, a system that provides real-time updates on the location and seat availability of the Libreng Sakay bus for QCU students. By integrating GPS tracking and a manual seat update feature, the system aims to reduce waiting times, prevent overcrowding, and help students plan their trips efficiently.

This study seeks to improve the commuting experience of QCU students by making the Libreng Sakay bus service more accessible, reliable, and convenient.

**Objectives**

**Main Objective:** To develop the QC Bus Tracker, a system that helps QCU students track the Libreng Sakay bus in real time using GPS and check seat availability through sensors, making their commute more convenient and efficient.

**Specific Objectives:**

1. To identify the common problems QCU students face when using the Libreng Sakay bus.

2. To design and implement a GPS-based tracking system to provide real-time bus location updates.

3. To assess the system’s impact on reducing waiting times and improving student convenience.

4. To develop an application that shows bus location and seat availability.

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Subject Adviser: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Pre survey

### **Possible Questionnaire for QC Bus Tracker Study**

#### **Section 1: Demographic Information**

1. What is your age? (\_\_\_)
2. What is your year level?
   * 1st Year
   * 2nd Year
   * 3rd Year
   * 4th Year
3. How often do you use the **Libreng Sakay** bus?
   * Daily
   * 3–4 times a week
   * 1–2 times a week
   * Rarely

#### **Section 2: Current Experience with Libreng Sakay**

1. How long do you usually wait for the **Libreng Sakay** bus?
   * Less than 10 minutes
   * 10–20 minutes
   * 20–30 minutes
   * More than 30 minutes
2. Do you often experience difficulty finding a seat on the bus?
   * Yes
   * No
3. What challenges do you face when using the **Libreng Sakay** bus? (Check all that apply)
   * Long waiting time
   * Overcrowding
   * Uncertainty about bus arrival
   * No available seats
   * Others (Please specify: \_\_\_)

#### **Section 3: Interest in the QC Bus Tracker System**

1. Would you find a system that provides real-time bus location helpful?
   * Yes
   * No
2. Would knowing the available seats before boarding make your commute easier?
   * Yes
   * No
3. Which features do you think should be included in the QC Bus Tracker app? (Check all that apply)
   * Live bus tracking
   * Seat availability updates
   * Estimated arrival time
   * Notifications for bus arrivals
   * Others (Please specify: \_\_\_)

#### **Section 4: Expected Impact of the QC Bus Tracker**

1. How likely are you to use the QC Bus Tracker app if available?

* Very likely
* Likely
* Neutral
* Unlikely
* Very unlikely

1. Do you think the QC Bus Tracker can help reduce waiting time?

* Yes
* No

1. How satisfied would you be if the system is implemented?

* Very satisfied
* Satisfied
* Neutral
* Dissatisfied
* Very dissatisfied