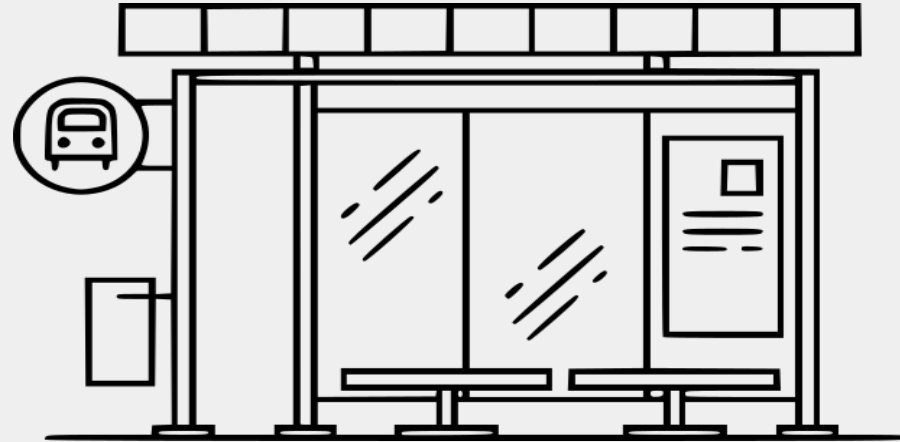


# Improvement in Public Transportation Commuter Services: Optimization and Refurbishment of Bus Stops in Parana City

**Universidad Tecnológica Nacional  
Facultad Regional Paraná**

**Electronics Engineering Department  
Inglés I**

**Marcos Penon - Lautaro Guigliani  
2023**



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# INTRODUCTION



Paraná, Entre Ríos

## PARANÁ

- 390,000 inhabitants
- 137 km<sup>2</sup> área
- 270 neighborhoods
- 21 bus lines

# What is the purpose of this presentation?

- ❖ **Show the poor conditions of many bus stops.**
- ❖ **Be aware of insecurity if stops are not controlled and improved.**
- ❖ **Give a solution to problem.**

# Map of the presentation

- ❖ **Description of the Context**
- ❖ **Problem Statement**
- ❖ **Description of Scenes that Help Picture the Problematic**
- Situation**
- ❖ **Identification and Analysis of the Causes that Give Rise to the Problem**
- ❖ **Weaknesses and strengths of the proposal**

# What is expected to be generated with this project?

- ❖ **Achieve a real discussion on the topics to be discussed.**
- ❖ **Achieve general awareness about the problems.**
- ❖ **Achieve true and complete change.**

# DESCRIPTION OF THE CONTEXT



## Route section for analysis of line 22

Improvement and renovation  
of bus stops on the route of  
Line 22 of Paraná



# Transport in Parana City

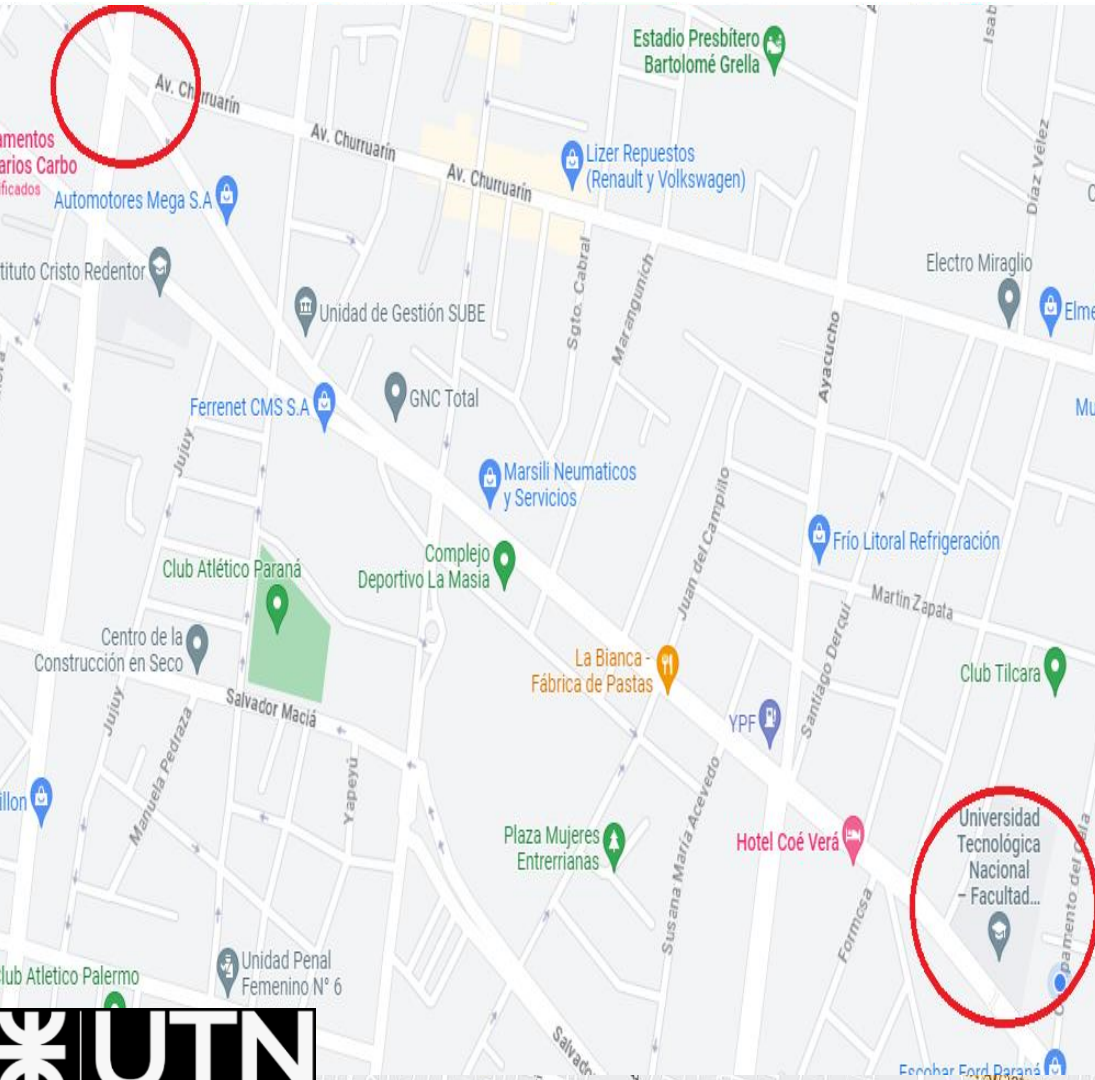
**The public transport is :**

- ❖ the means to go somewhere
- ❖ an important factor for urban growth
- ❖ a basic requirement for a developed city



## Description of the context

# BUS STOP AND IMPORTANT LOCATIONS ON THE ROUTE



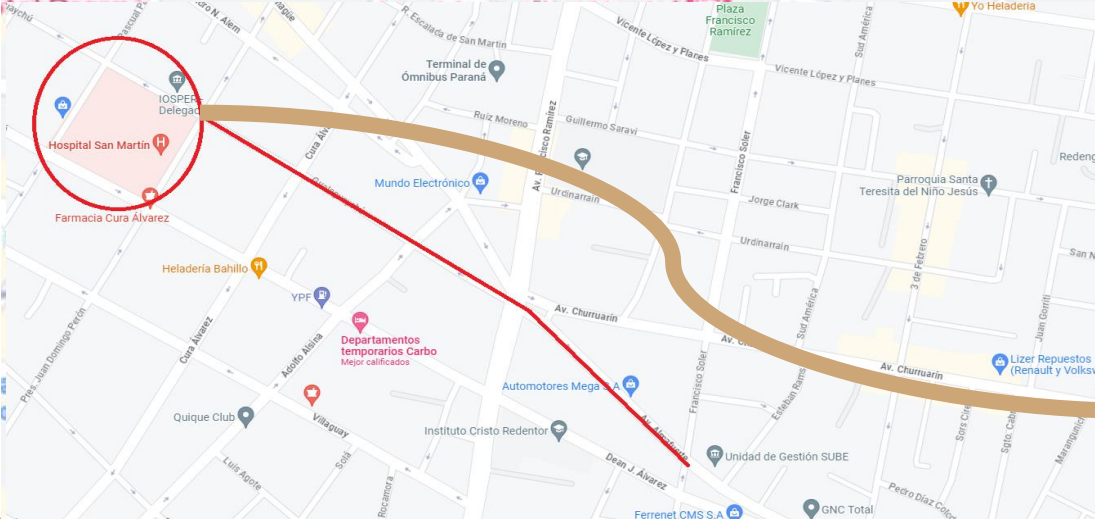
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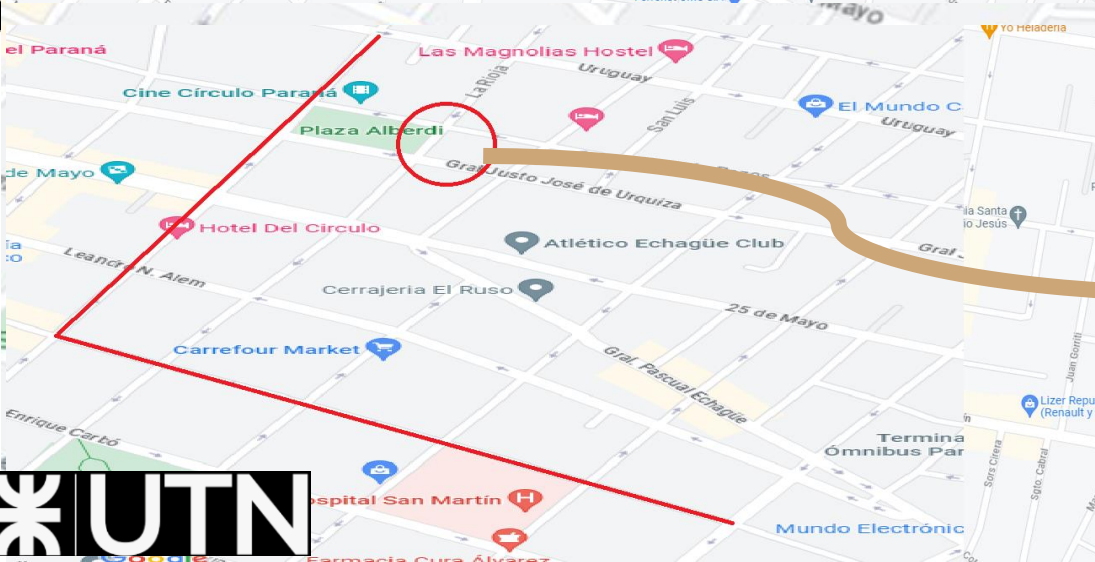


## Description of the context

# BUS STOP AND IMPORTANT LOCATIONS ON THE ROUTE



SAN MARTIN HOSPITAL



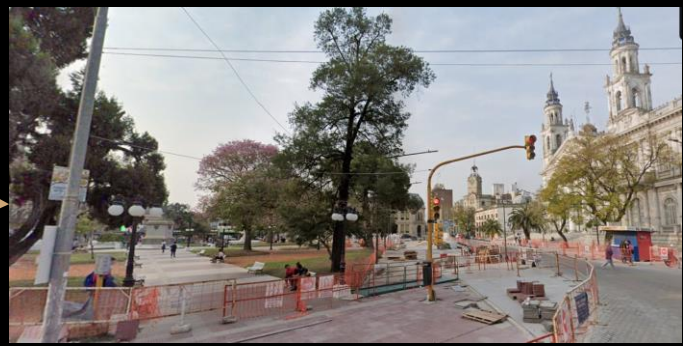
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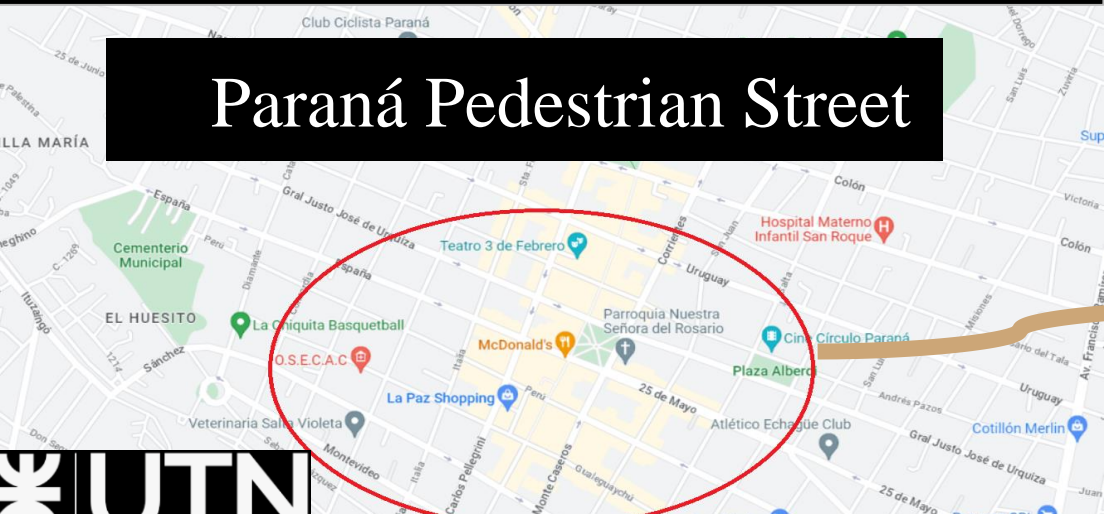
# Description of the context

## BUS STOP AND IMPORTANT LOCATIONS ON THE ROUTE

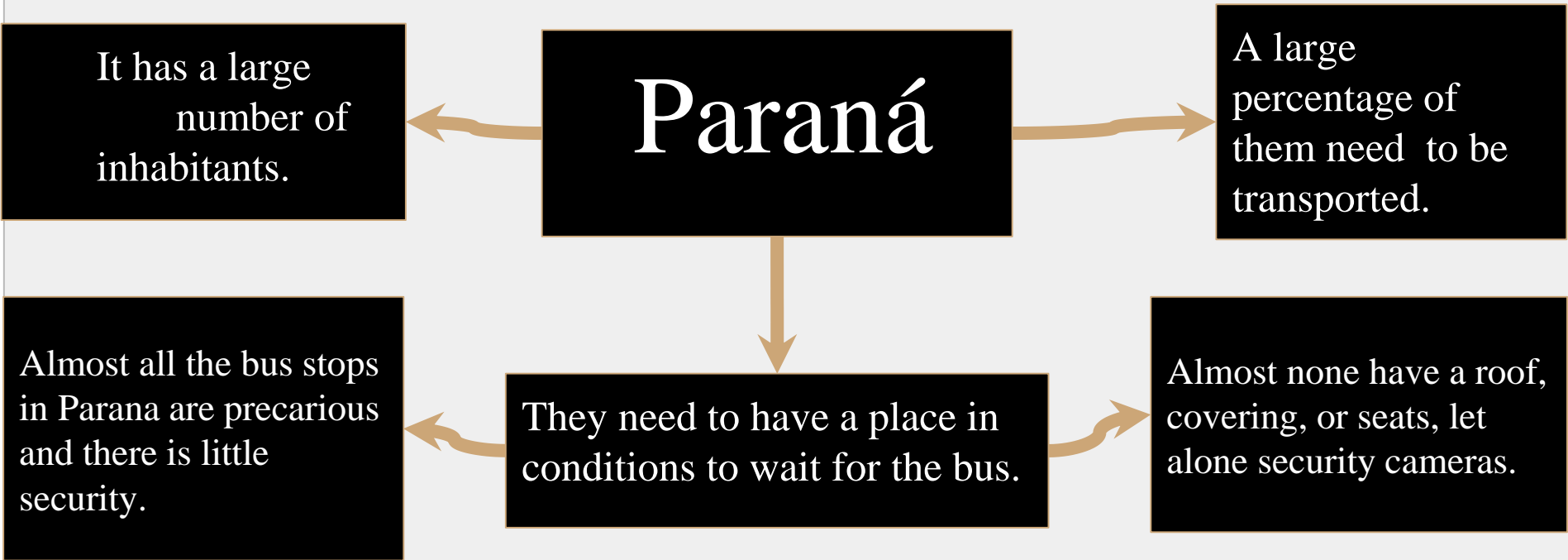
“1° de mayo” Square



Paraná Pedestrian Street



# PROBLEM STATEMENT



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# Problem Definition and Analysis:

*Description of Scenes that Help Picture the Problematic Situation*

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## Description of Scenes that Help Picture the Problematic Situation

The bus stops in Parana have:

- ❖ no protection against storms and wind.
- ❖ almost no signage to find the point.
- ❖ little security and no way to locate authorities.
- ❖ no type of comfortable environment to wait long hours for a bus.

*Identification and analysis of causes or factors that give rise to the problem:*



## *Identification and analysis of causes or factors*

Taking into account the states of the bus stops we see:

- ❖ lack of Investment and maintenance.
- ❖ lack of civic responsibility.
- ❖ lack of organization of government bodies

# *Causes*



# *Identification and Description of the Consequences*

*Identification and Description  
of the Consequences*

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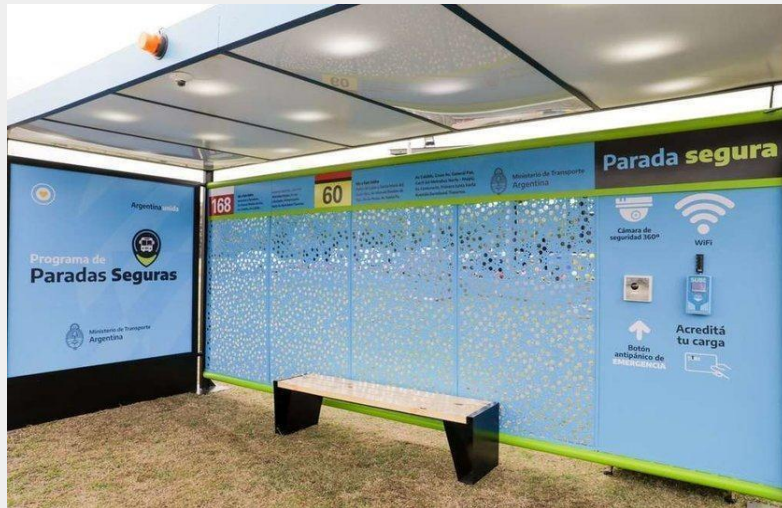
- ❖ Lack of well-being due to danger
- ❖ Robberies and fear of the dark
- ❖ Cold exposure in winter and heat exposure in summer
- ❖ Waste of time
- ❖ Deterioration of the public transportation system

Consequences



# The Way Forward

Problem approach



- ❖ Evaluation of Current Stops
- ❖ Development of Sustainable Design and Planning
- ❖ Selection of Materials and Sustainable Technology
- ❖ Efficient Implementation and Maintenance

## Steps to follow



# Strengths and Weaknesses of the Proposal



## Strengths and Weaknesses of the Proposal

- ❖ User Safety
- ❖ Better Passenger Flow
- ❖ Technological Integration
- ❖ Environmental Sustainability

# Strengths



## Strengths and Weaknesses of the Proposal

- ❖ Implementation Costs
- ❖ Continuous Maintenance
- ❖ Material Delivery Logistics
- ❖ Lack of Public Information

Weaknesses



# Conclusion

Through the implementation of modern, safe, and sustainable bus stops, our project aims to transform Paraná's urban environment. We aspire to improve urban connectivity, making public transportation more appealing. This project is a visionary step towards a better future for the city and its residents.



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