Puncture Detection System

Introduction:

The purpose of this project proposal is to develop a puncture detection system for two-wheelers, specifically targeting electric scooters and motorcycles. This system aims to enhance the safety, convenience, and overall riding experience of users by providing real-time alerts for punctures in the tires. This allows riders to take immediate action to prevent damage to the vehicle and ensure their own safety.


Objective:

- The purpose of the system is to provide real-time alerts for two-wheeled electronic vehicles when a puncture is detected.
- To reduce the risk of accidents , extend the life of tires, to improve rider convenience.
- Conduct extensive testing and validation to ensure tires reliability and effectiveness.

Methodology:

Research and Analysis is needed to understand the unique requirements and challenges associated with two-wheelers. Sensor Integration is needed to accurately detect punctures, and Data Processing and Algorithm Development is needed to process sensor data and detect punctures reliably. This is done in a TPMS device called Infineon (baromatric pressure sensor).System Integration involves integrating the puncture detection system with the two-wheeler's existing electronics and display mechanisms, testing and validation to ensure reliability and effectiveness, and documentation and reporting to document the project development process.

Architecture:
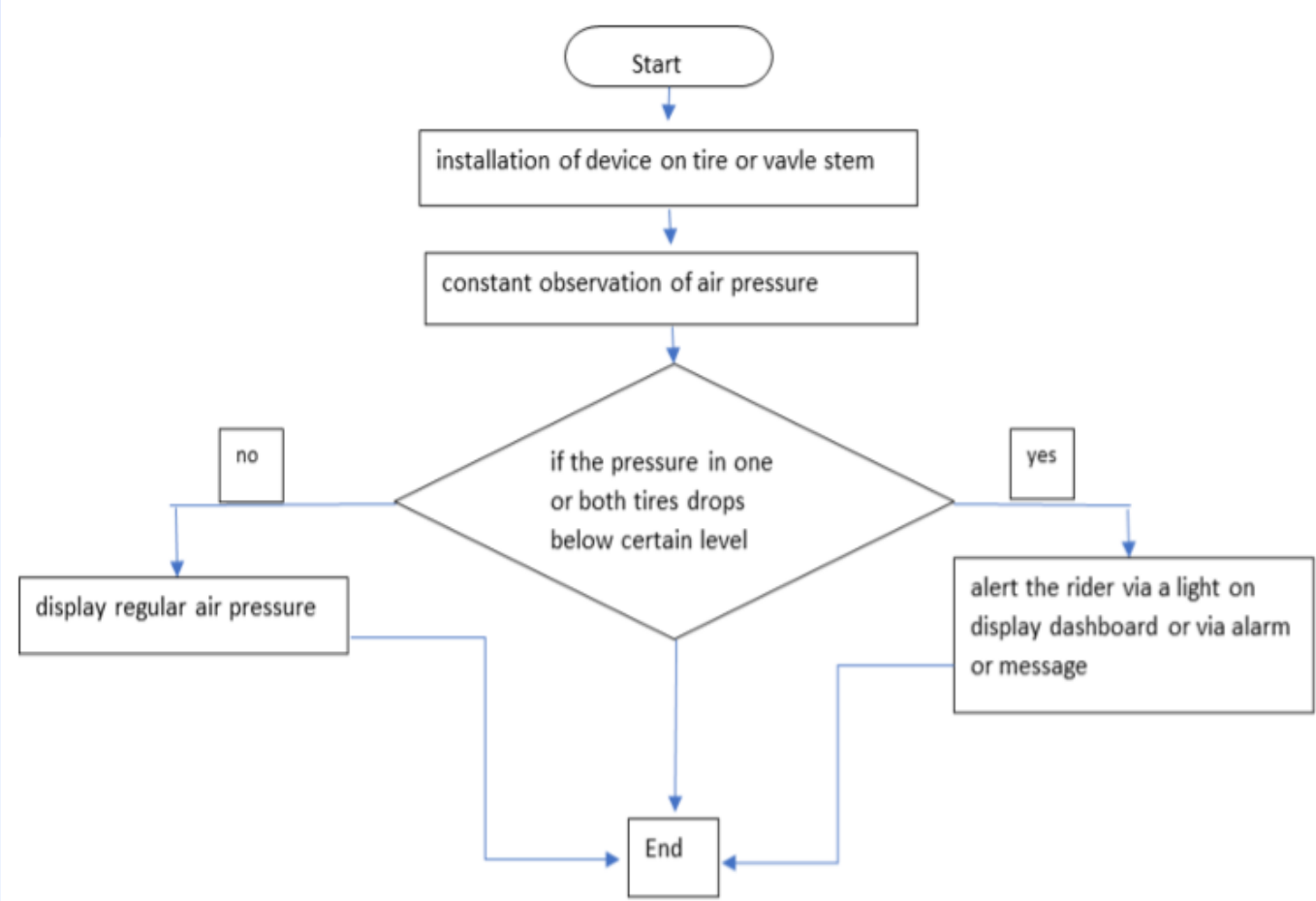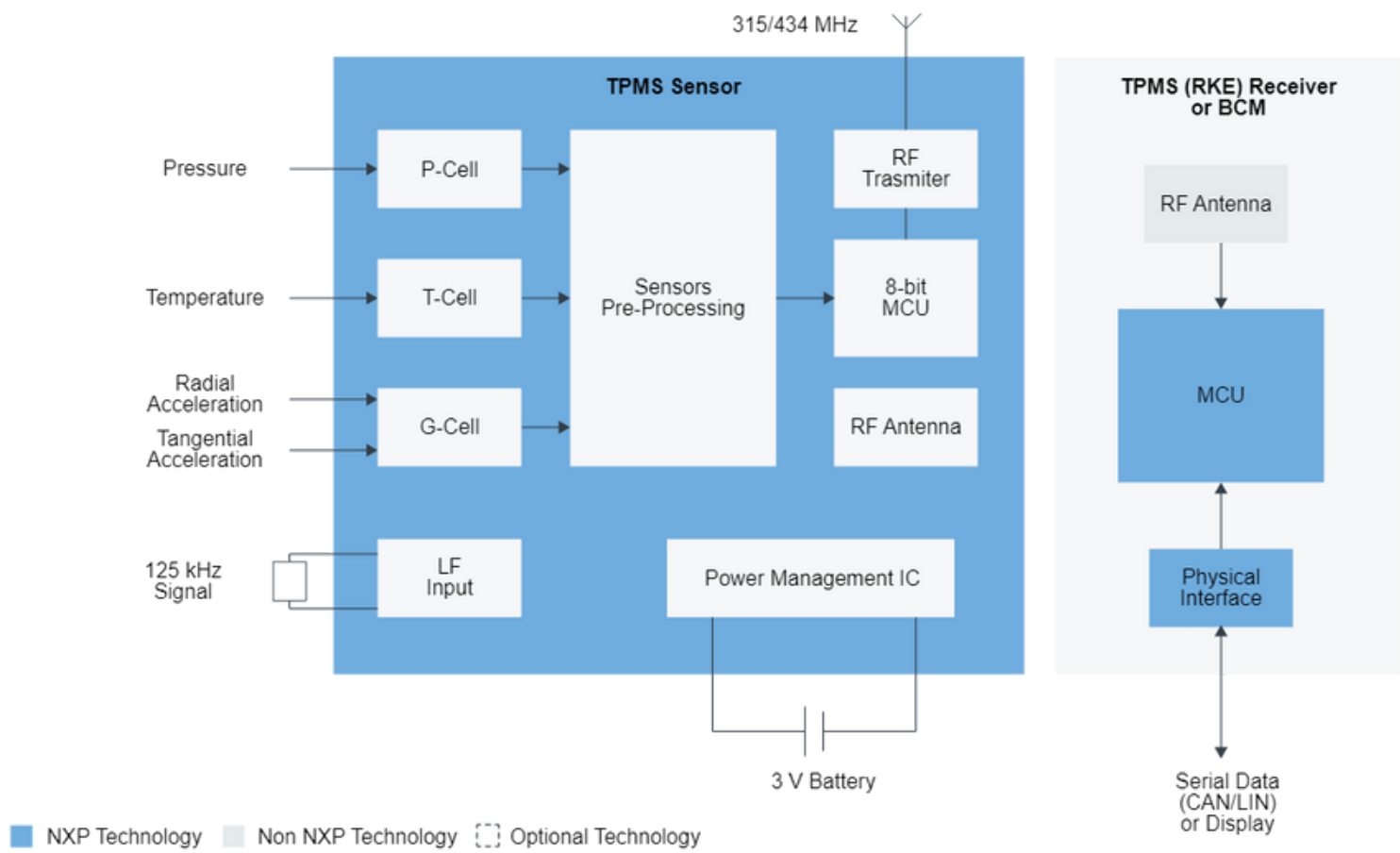
Conclusion:

The growth of a reliable puncture detector for two-wheeled electronic vehicles has the potential to improve overall riding experience, safety, and tire lifespan. It will reduce accidents caused by sudden tire failures and provide riders with timely alerts for necessary maintenance actions.