# OUTDOOR AIR QUALITY AND WEATHER STATION NETWORK

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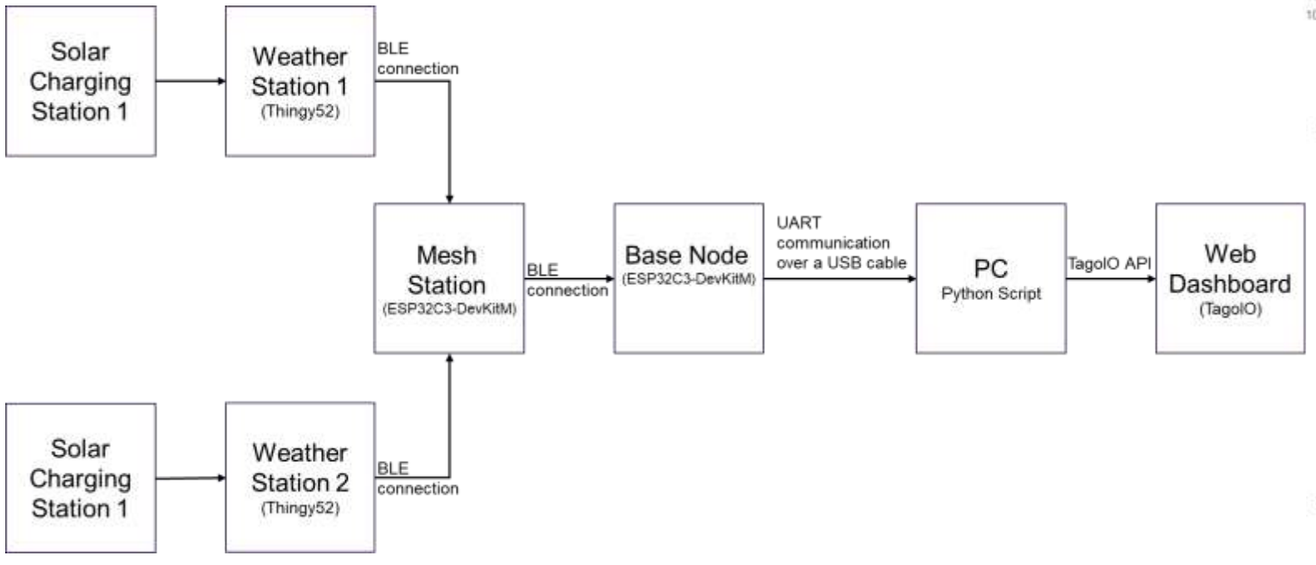
## INTRODUCTION

This project aims at monitoring and analyzing the air quality in outdoor environments. It utilizes a mesh network system coupled with advanced weather stations to gather comprehensive data on various atmospheric parameters, including pressure, temperature, humidity, CO2 levels, and volatile organic compounds (VOCs). Additionally, the system provides a real-time updated dashboard for intuitive visualization of multiple air quality factors.

## KEY PERFORMANCE INDICATORS (KPIs)

- Accuracy of air quality monitoring sensors.
- Weather Station Functionality – The system is functional with any number of weather stations within 0 to 2
- Mesh Network Connectivity – Nodes can automatically join the Bluetooth mesh network
- Power Consumption Level – The system can be charged with solar power for better sustainability
- Consistency of Web Dashboard – Update each second

## SYSTEM STRUCTURE




## EQUIPMENTS

- Two 3D printed charging stations - consisting of Solar Power Manager 5V, rechargeable battery, solar panel
- Two ESP32C3-DevKitM boards for mesh station and base node.
- Two Thingy52 for both weather stations

## RESULT