PM2.5 DETERMINATION

using self-made iot sensors

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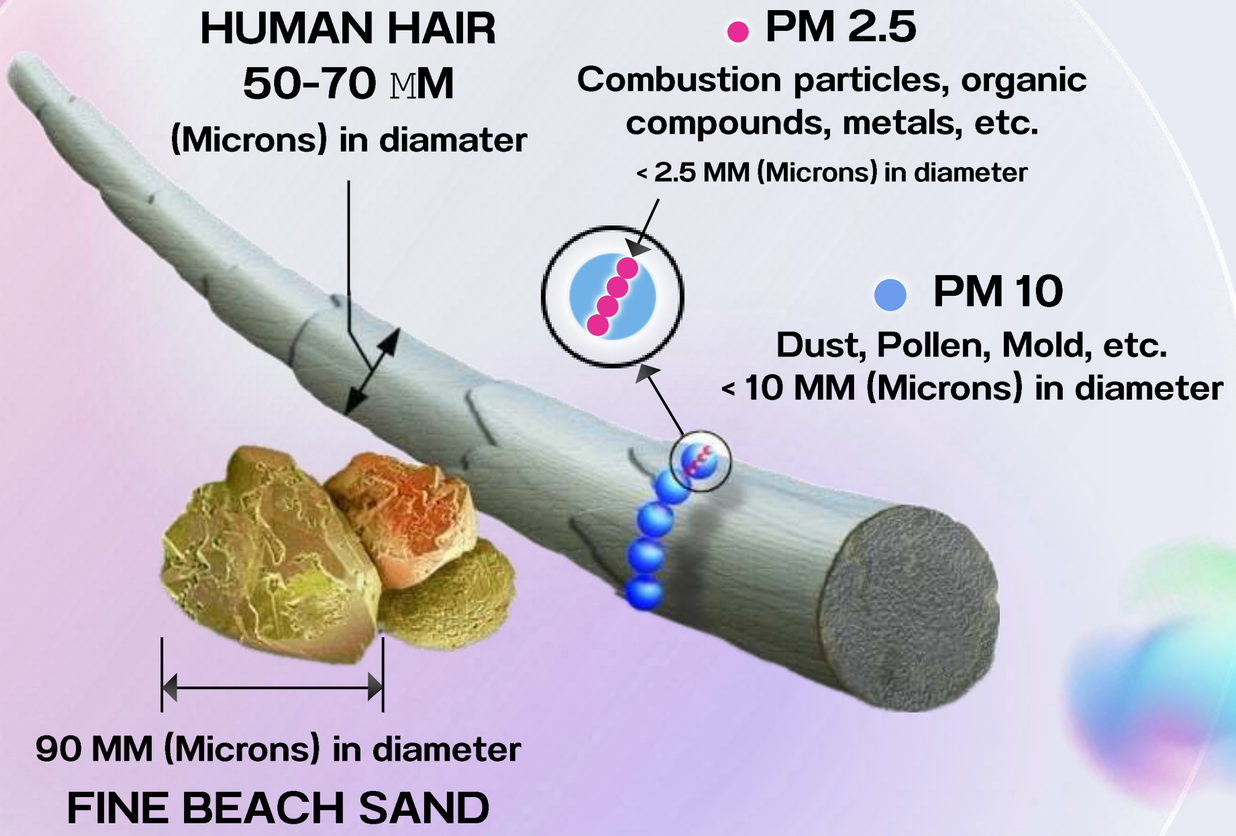
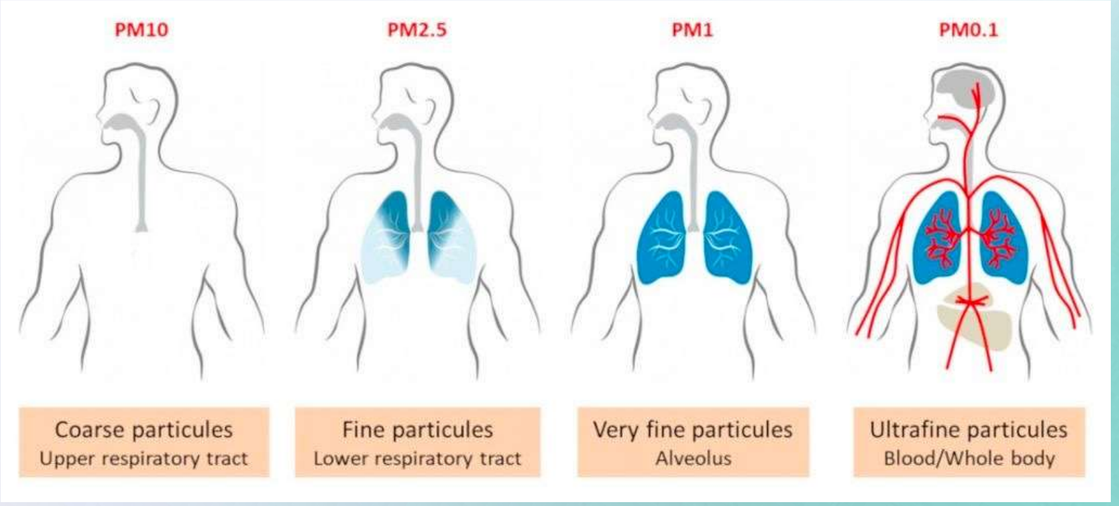
GRADE 11

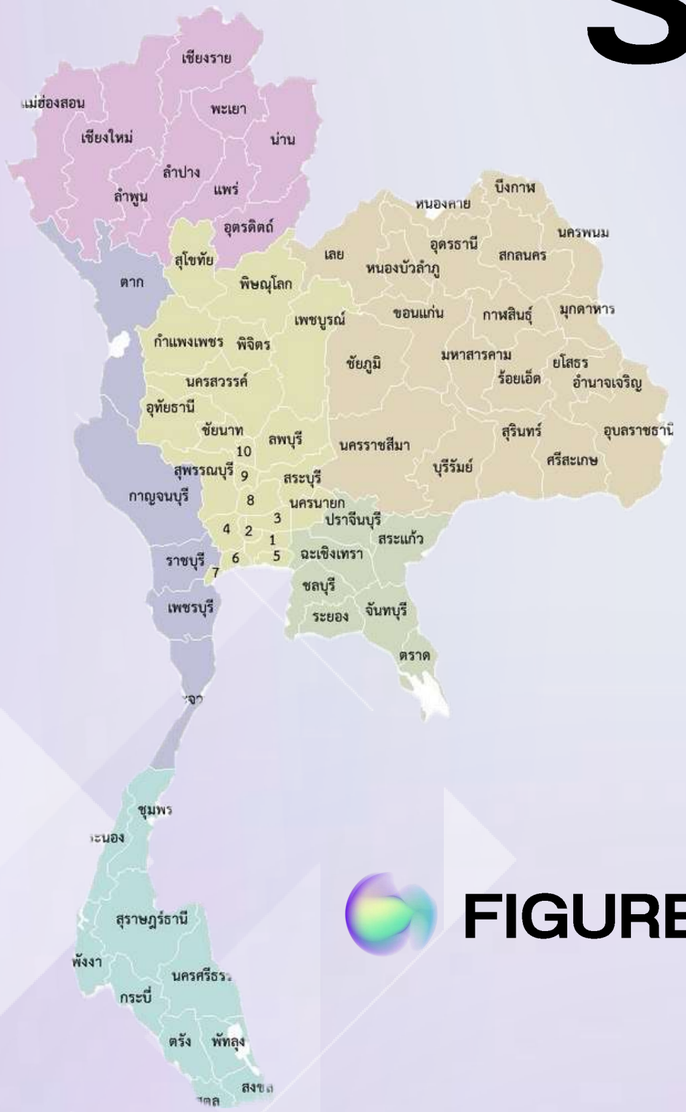
INTRODUCTION



Dust problem is a problem that is currently being faced around the world. And the dust that is a problem and is talked about a lot is PM2.5, which is dust that is smaller than 2.5 microns.



STUDY SITE



THAILAND

FIGURE 1

PHETCHABURI

KAENG KRACHAN

RUEN WAREE

OBJECTIVES

1. To build an IoT sensor to determine PM 2.5, temperature and Humidity

2. To study the problem of PM2.5 air quality in communities around Kaeng Krachan Dam

3. To study and develop Arduino IDE programming and send data to Cloud for comparison.

SENSOR INSTALLATION

RIVER NEAR THE RUANWAREE RESORT

CAR PARKING

DAM RIDGE

AIR POLLUTION COMPARISON PICTURE

CREDIT : HTTPS://TECHSAUCE.CO/TECH-AND-BIZ/CHINAS-SOLUTIONS-TO-AIR-POLLUTION

COMPARE EFFICIENCY OF

DAVIS WEATHER LINK

IOT KAENG KRACHAN PM2.5

CREDIT : HTTPS://WWW.PINTEREST.COM/PIN/585045807823758572/SENT/INVITE_CODE=9FCAB707217945849054FEA5075E9379&SENDER=792000421878278909&SFO=1

CONJUNCTIVITIS

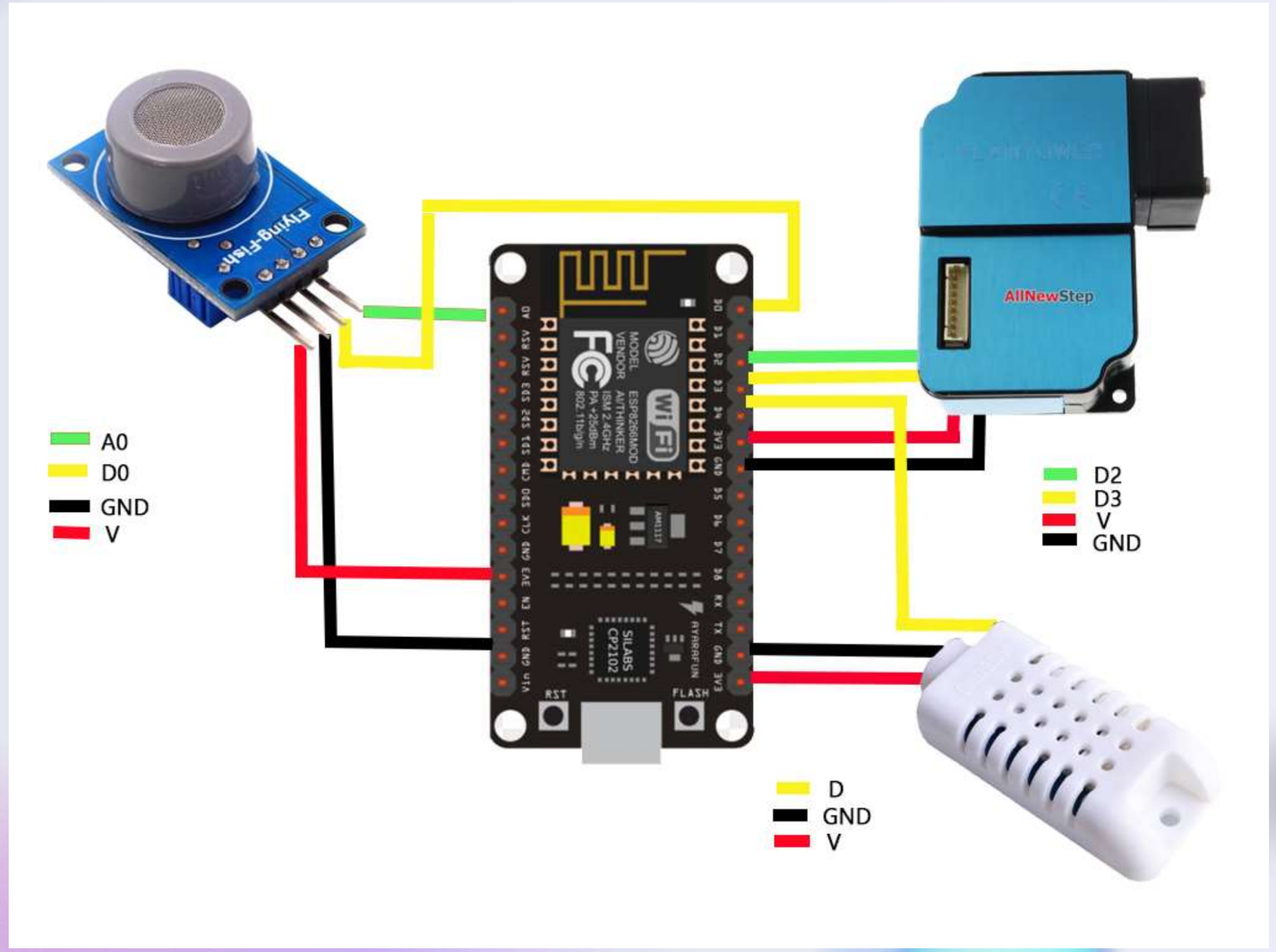
CREDIT : HTTPS://IMAGES.APP.GOO.GL/423AKT4MCHJREJXE8

AIR POLLUTION

CREDIT : HTTPS://PIN.IT/WB2ZPFS

MATERIALS AND MEDTHOD

ASSEMBLY PROCESS



PART OF IOT
KAENG KRACHAN PM2.5

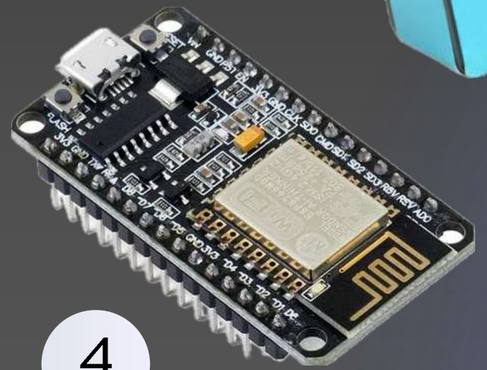
- 4 JUMPER WIRES (MALE AND FEMALE)
- PM2.5 LASER DUST SENSOR
- SENSOR DHT22
- NODE MCU
- ELECTRICAL BOX CASING

1

2

3

4



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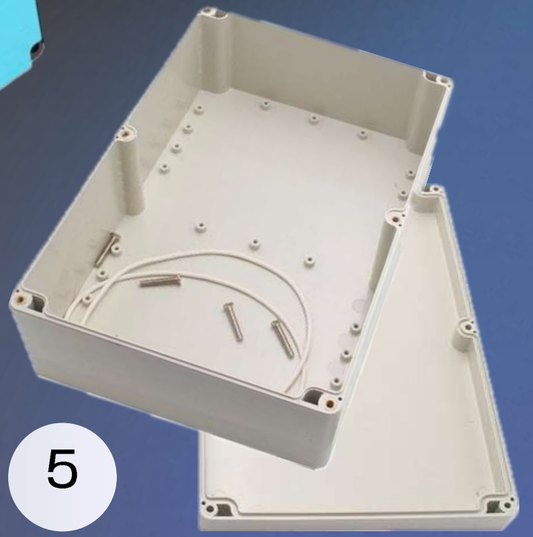

PART OF IOT
KAENG KRACHAN PM2.5

- WIFI POCKET
- POWER BANK
- ARDUINO IDE
- BREADBOARD
- USB WIRES

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7

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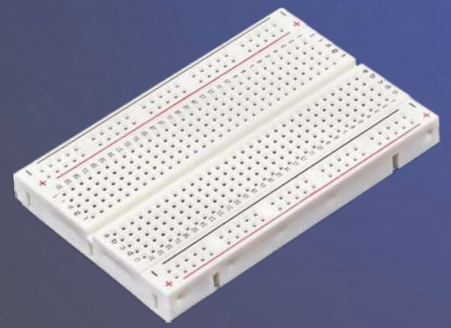

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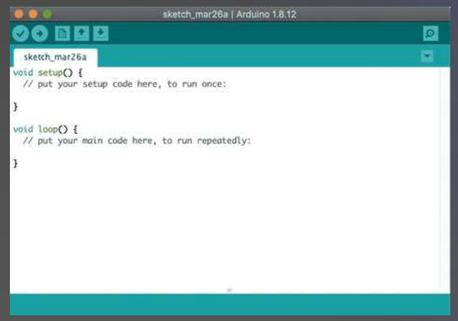
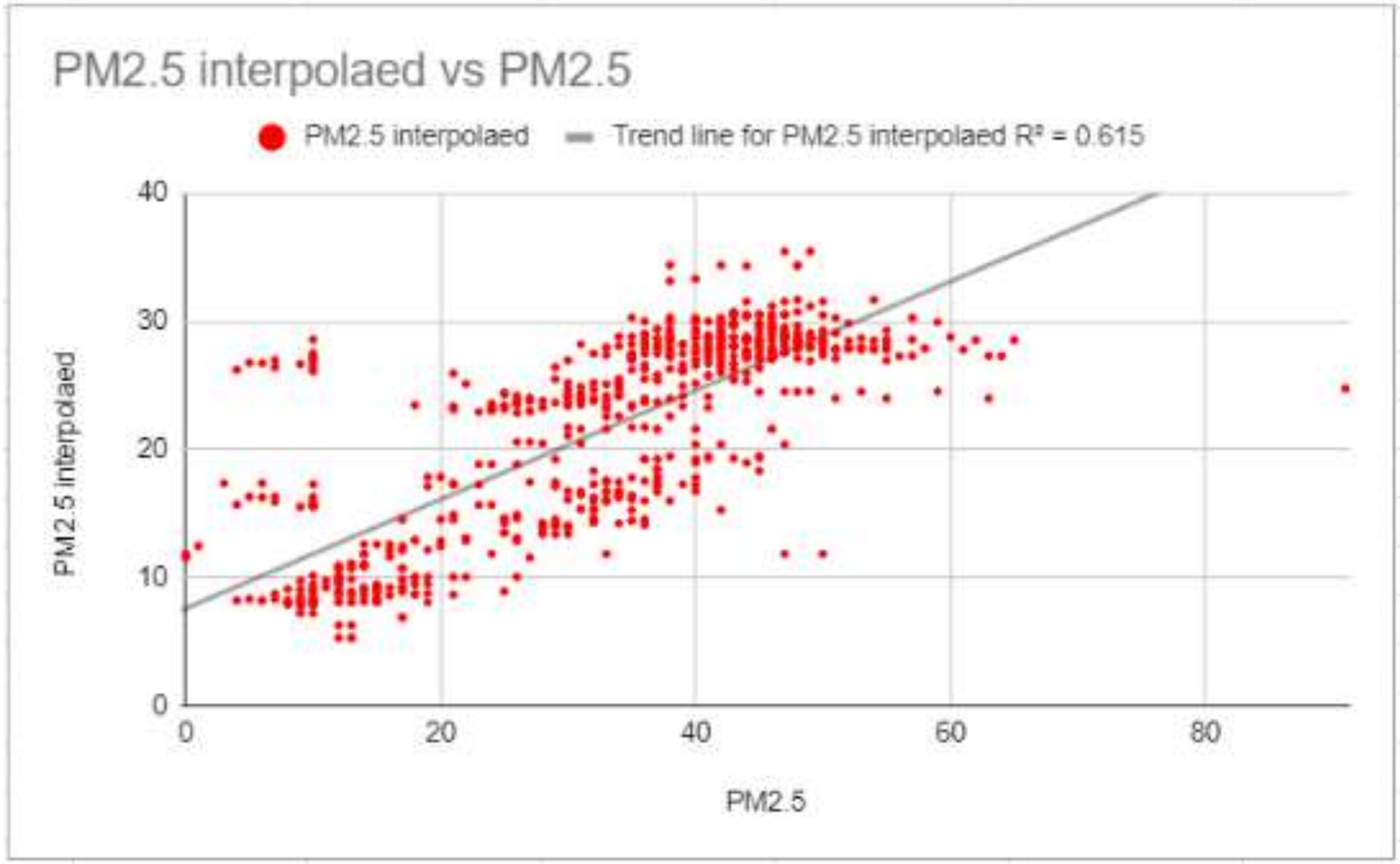
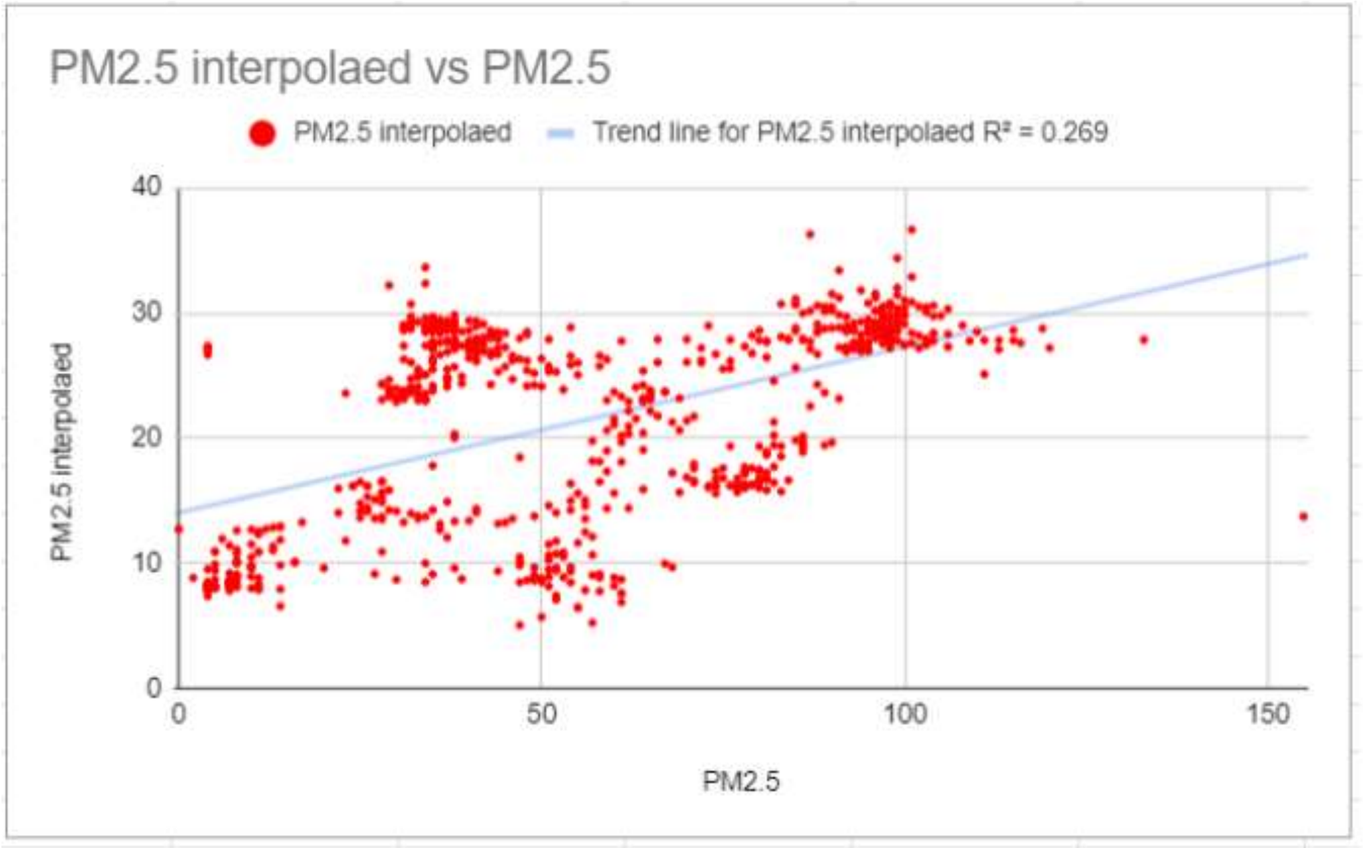


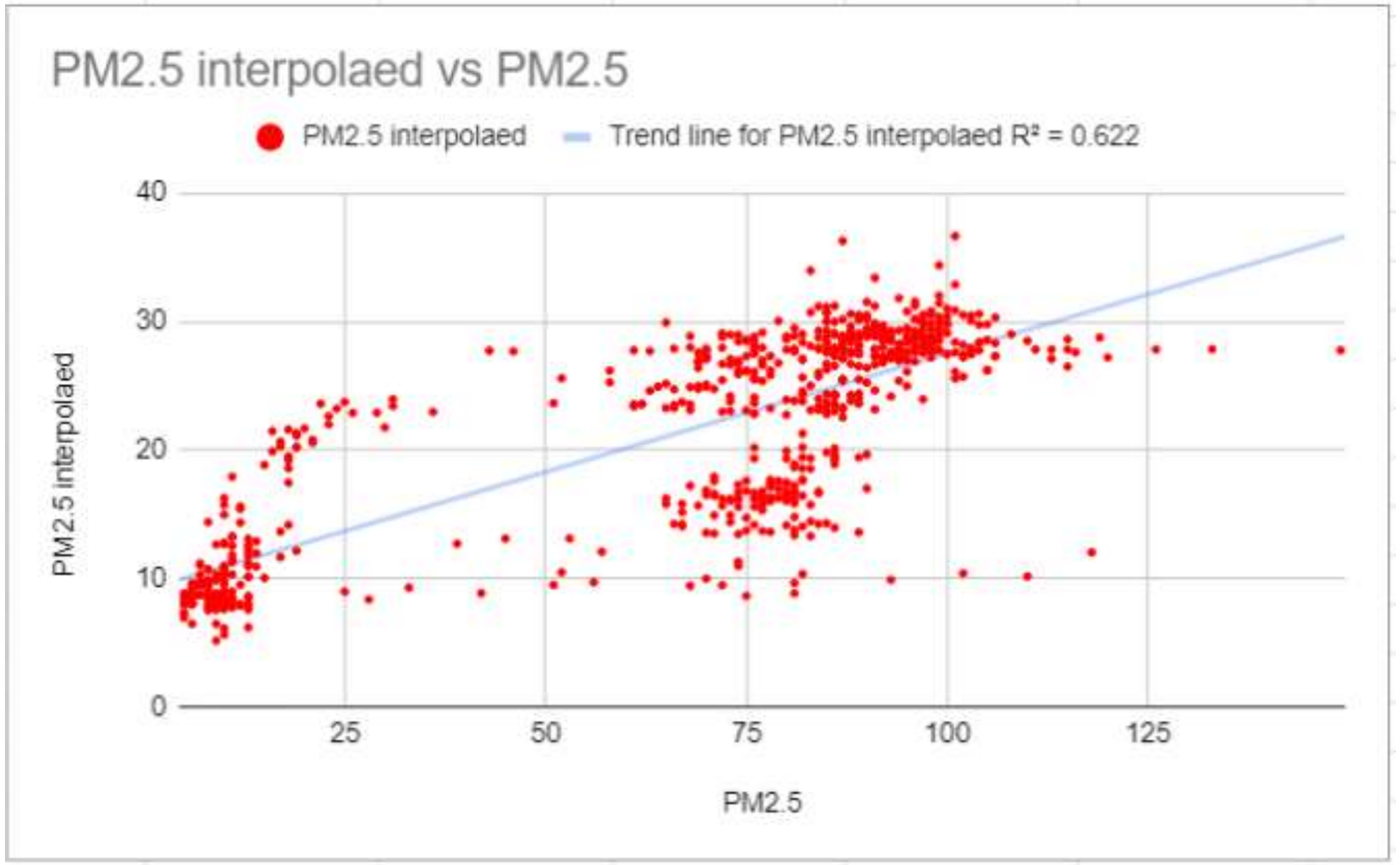
KAENG KRACHAN DAM RIDGE



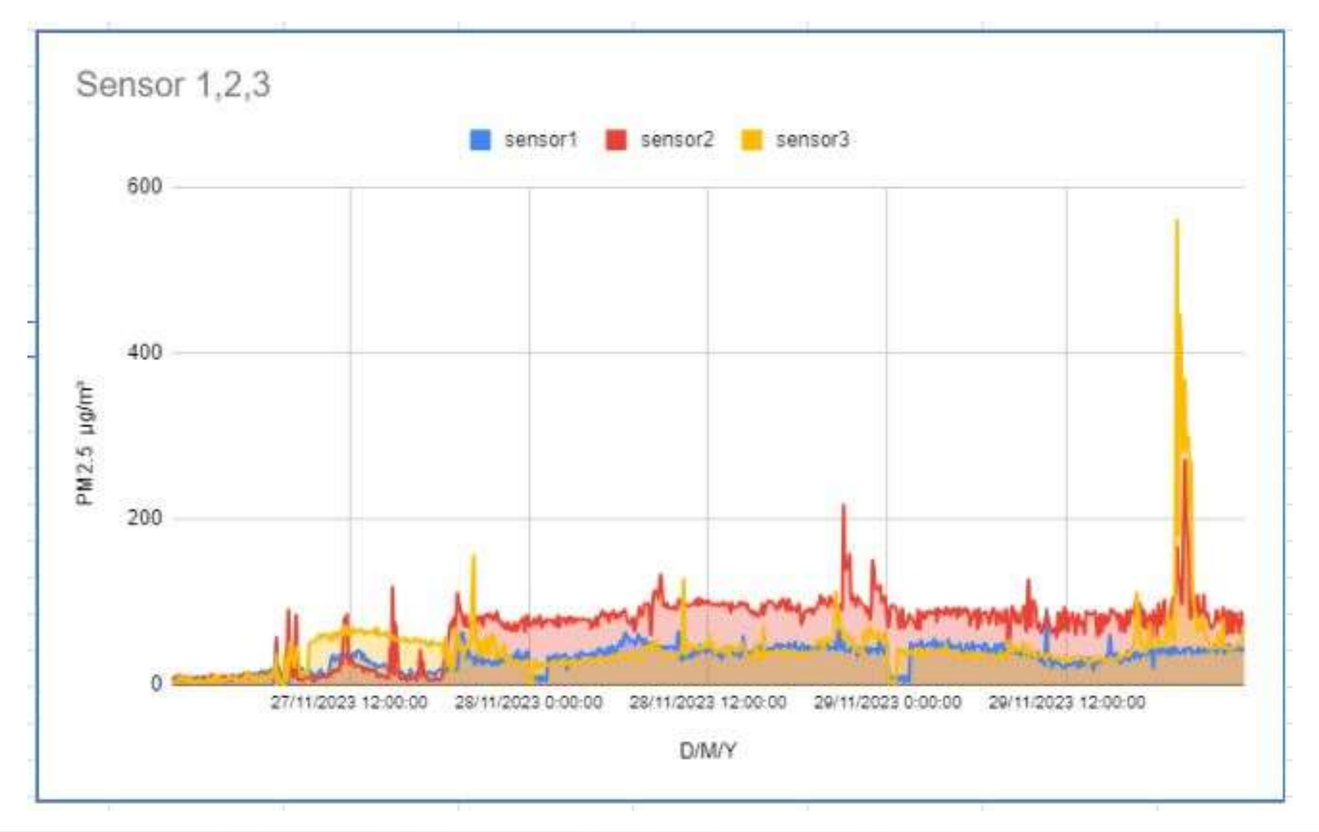
RUEN WAREE (PARKING)



PHETCHABURI RIVER



CONCLUSIONS



PM2.5 concentrations were measured over three days at different locations : dam ridge, parking lot, and waterfront. The parking area consistently showed the highest values (sensor 2), followed by the waterfront (sensor3), and the dam ridge (sensor1). Levels varied throughout the day, with the parking area experiencing the highest concentrations. Further investigation is recommended to identify and address potential sources of these particles, especially in the parking area, to mitigate health and environmental concerns.

CONCLUSIONS

SUGGESTIONS

AIR PRESSURE AND WIND SPEED SHOULD BE MEASURED TO CHECK FOR OTHER FACTORS. THAT AFFECTS THE AMOUNT OF PM2.5 BESIDES TEMPERATURE.

IN ADDITION, THE INSTALLATION POINTS FOR BOTH PM2.5 METERS SHOULD BE CHOSEN TO BE AS SIMILAR AS POSSIBLE TO REDUCE DATA DISCREPANCIES.

AND INCREASE THE INSTALLATION OF PM2.5 METERS TO GET MORE DATA AND BE ABLE TO ANALYZE IT ACCURATELY.

THANK YOU

Thank

you