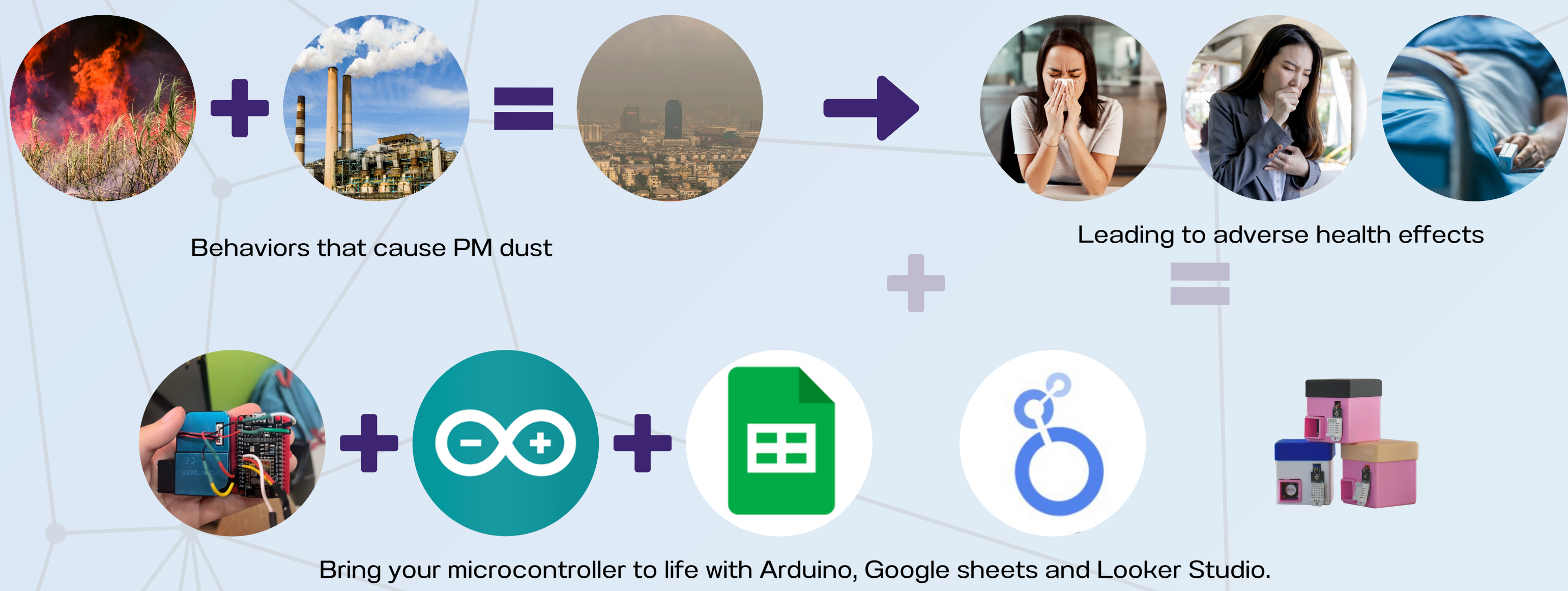# The Study of Factors Affecting The Distribution of PM Dust in Loei Province with Cube Sat Lite

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PROBLEM

Behaviors that cause PM dust

Leading to adverse health effects

Bring your microcontroller to life with Arduino, Google sheets and Looker Studio.

PROJECT DESIGN

Create circuits with Arduino and sensor

Coding and upload code to Arduink board

Design and print Cube Sat Lite with 3D printing

Find efficiency by measuring with standard equipment.

อุปกรณ์ Cube Sat Lite เครื่องที่ 1	
M2.5(μm)	อุณหภูมิ()
67	20.5
23	28.4
8	36.5
32.7	28.4
34	28.4
±3.8	±13.7

Analyze device performance data
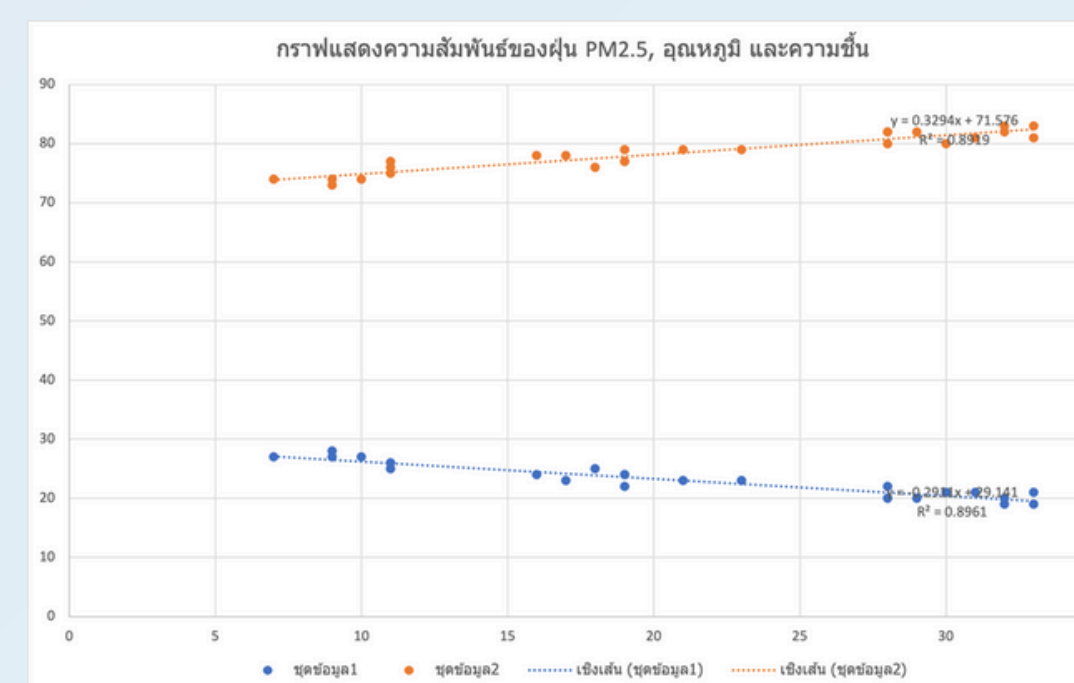
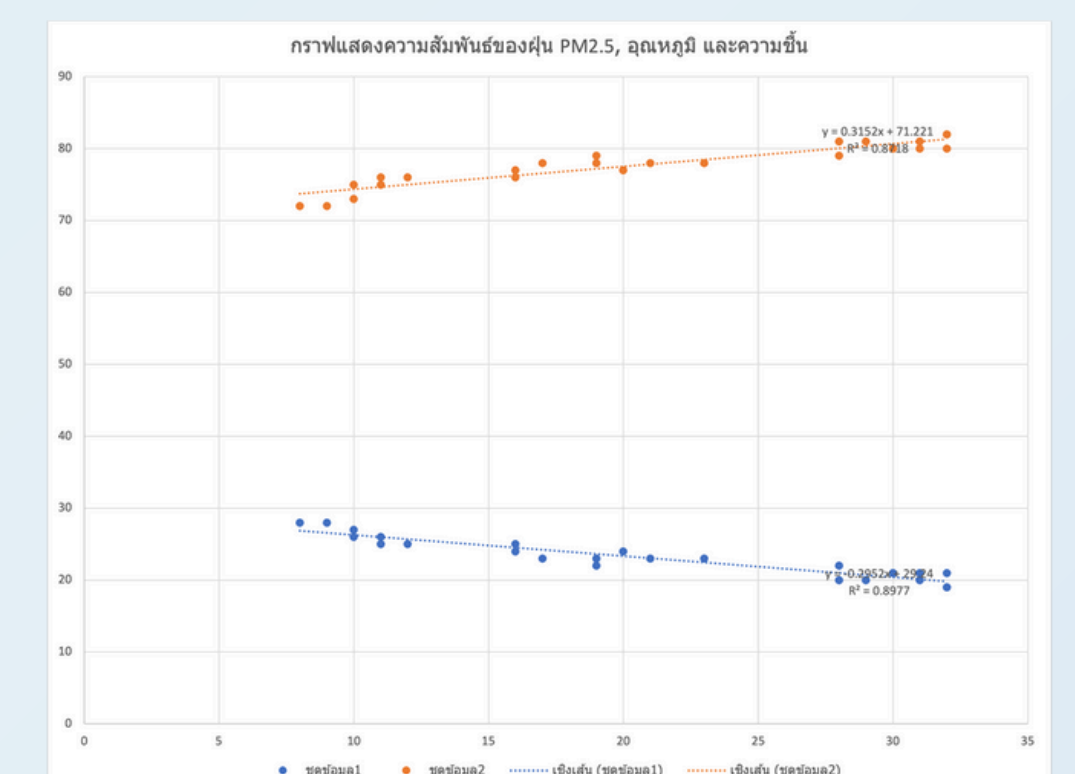Installed at various points

Record, analyze and interpret data
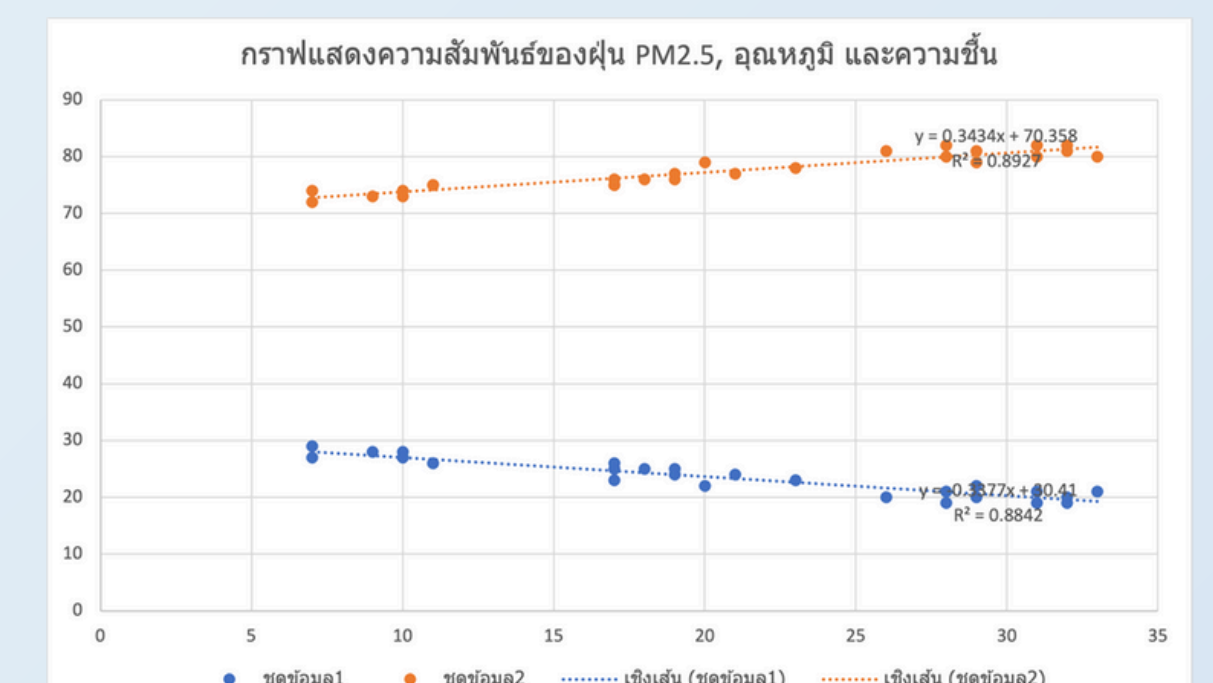
Visualize data through Looker Studio

FINDING

The graph shows the relationship between PM2.5 dust quantity and humidity = 0.3294x + 71.576 (R² = 0.8919) and PM2.5 dust and temperature = 0.2911x + 29.141 (R² = 0.8961).

The graph shows the relationship between PM2.5 dust quantity and humidity = 0.3152x + 71.221 (R² = 0.8718) and PM2.5 dust and temperature = 0.2952x + 29.24 (R² = 0.8977).
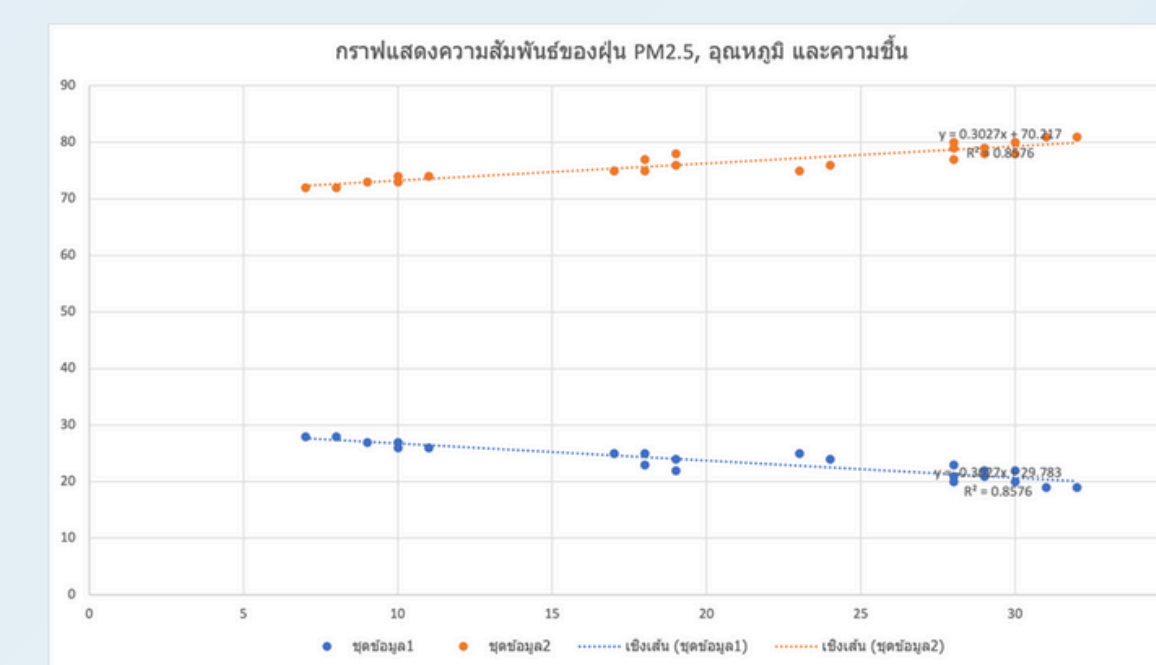
The graph shows the relationship between PM2.5 dust quantity and humidity = 0.3027x + 70.217 (R² = 0.8576) and PM2.5 dust and temperature = 0.3027x + 29.783 (R² = 0.8576).

The graph shows the relationship between PM2.5 dust quantity and humidity = 0.3434 + 70.358 (R² = 0.8927) and PM2.5 dust and temperature = 0.3377x + 30.41 (R² = 0.8842).

From the study of factors affecting the distribution of PM dust in Loei Province and the creation of the device and testing the efficiency of the Cube Sat Lite device, it can be concluded that from 12.00 noon on January 7, 2024 to 02.00-03.00 on January 8, 2024, the temperature tends to decrease continuously, while the amount of PM2.5 dust and humidity tends to increase continuously. In addition, from 03.00-04.00 on January 8, 2024, the temperature tends to increase continuously, while the amount of PM2.5 dust and humidity tends to decrease continuously.

Interpretation and Conclusion

From the experiment of installing the Cube Sat Lite device and collecting data to analyze to find the relationship between PM2.5 dust, humidity and temperature, it was found that it did not match the hypothesis that the amount of PM2.5 dust, humidity and temperature obtained from measurements with the Cube Sat Lite device were related. When the amount of PM2.5 dust was high, humidity was low and temperature was high. When the amount of PM2.5 dust was low, humidity was high and temperature was low.

It is known that temperature and humidity are among the factors that affect the distribution and amount of PM2.5 dust, which can be further applied to solve air pollution problems in the future, including forecasting the amount of pollution that may occur in the future.
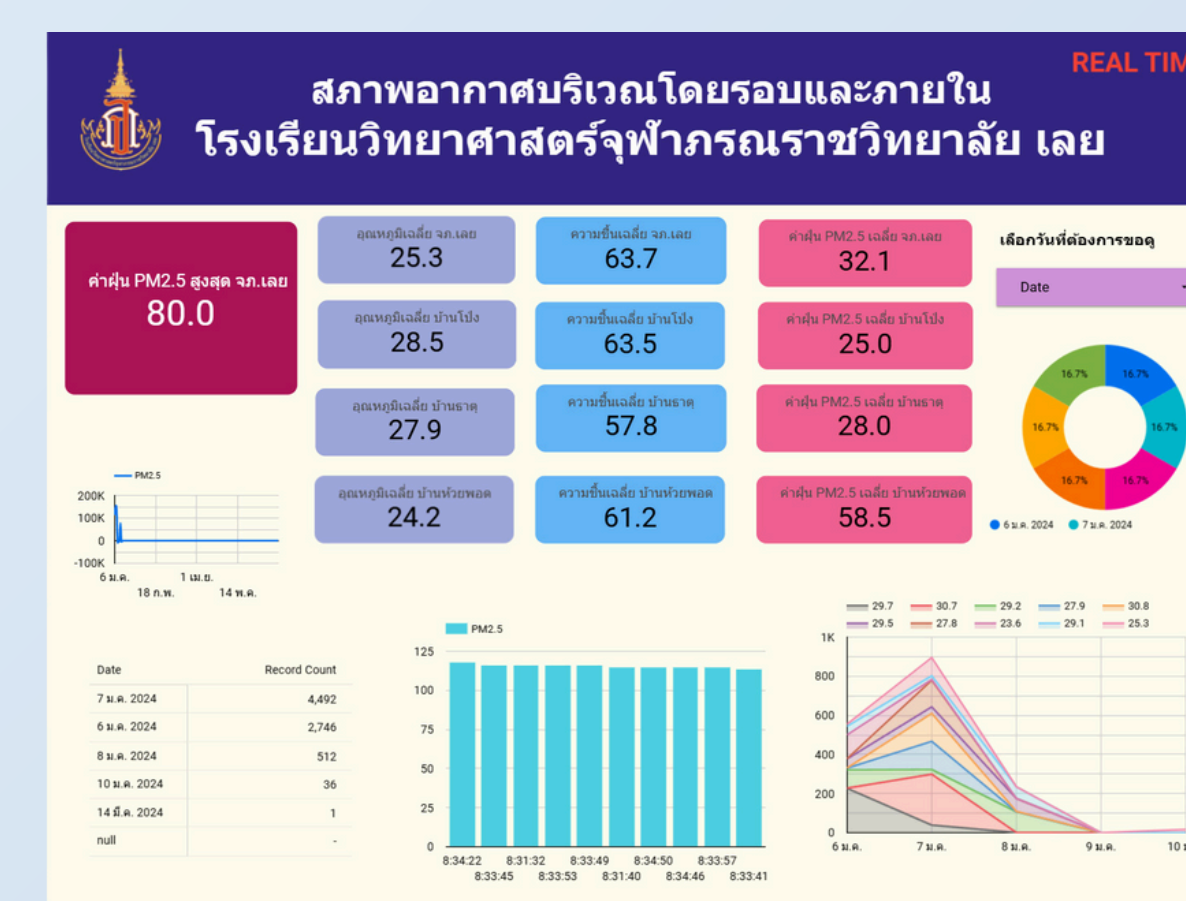
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