AdEco

# A DISASTER DETECTION & RESPONSE SUPPORT SYSTEM

## : THE COMBINATION OF EMBEDDED BOARDS AND SW

2023 GIRLS IN ICT

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# OVERVIEW AND INTRODUCTION OF IDEAS

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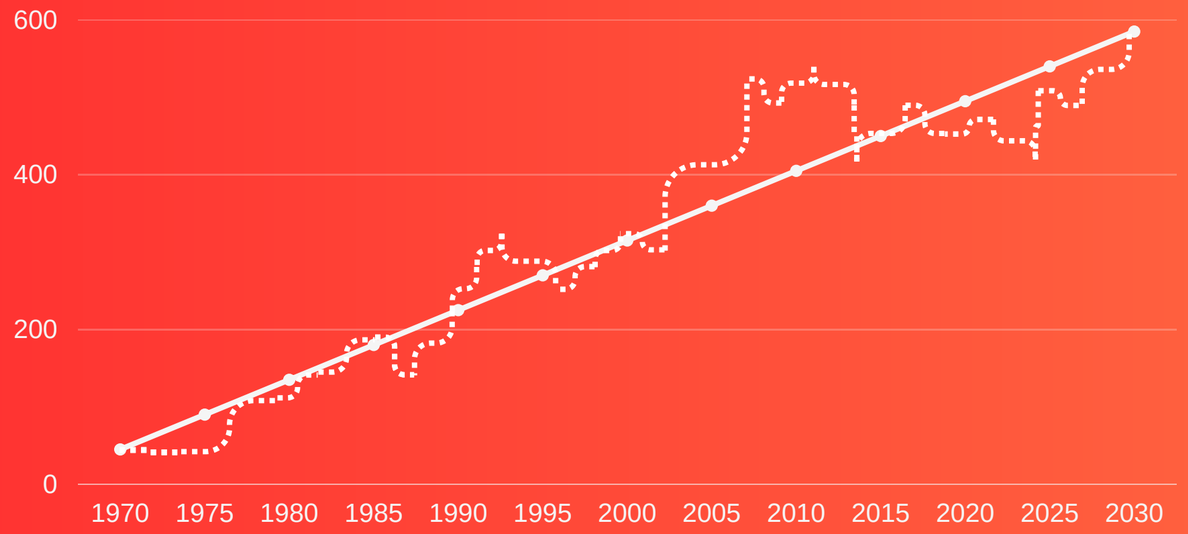



[Current Status and Forecast of Yearly Disaster Cases]

If current trends continue, the number of disasrers per year globally may increase to 560 per year by 2030
*a projected increase of 40% during the lifetime of the Sendal Framework by *UNDRR

## Background of development

- announced by *UNDRR the number of disasters on Earth is increasing as the climate crisis becomes serious.

- As the Earth's climate deteriorates, the frequency of disasters increases, and accordingly, our team AdEco designed a

**"disaster detection and response system"**

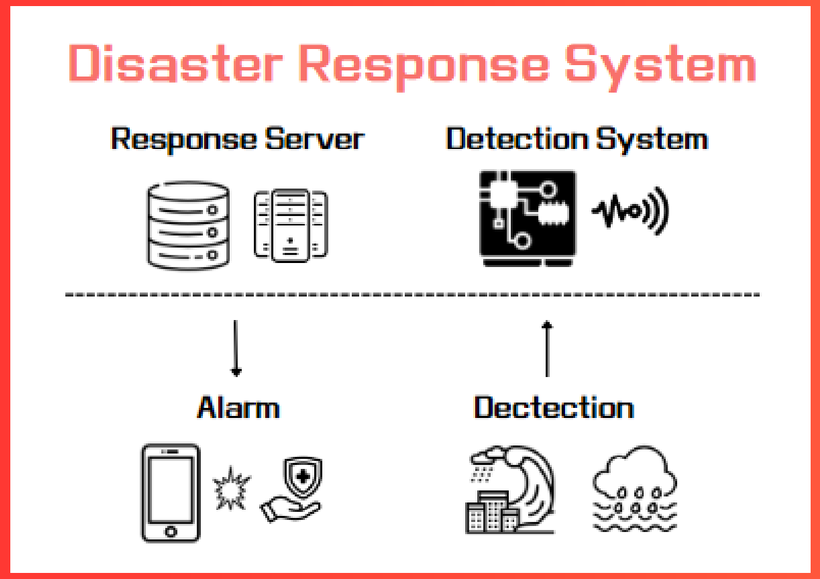
## Expectation effectiveness

- According to data from the SENDAI FRAMEWORK, 14 out of 195 countries have multiple risk early warning systems, and only 0.46% of the world has predictive systems.

- So by deploying this system in each country, we can make a world that's predicted by disasters

*UNDRR-United Nations Office for Disaster Risk Reduction

# OVERVIEWS OF SYSTEM OPERATION

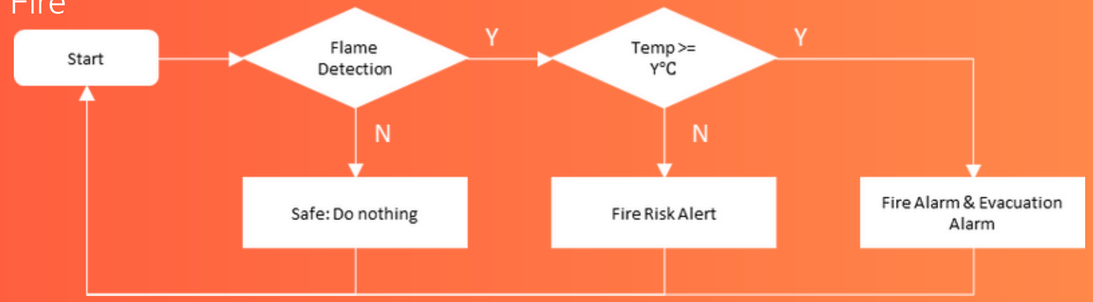



Structure of disaster response system

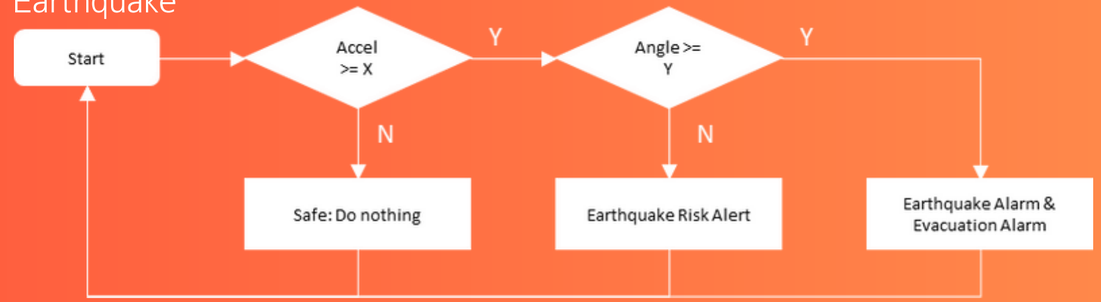
Disaster list to be detected and sensors to be used

| | Fire | Flood | Earthquake | Typhoon |
|---|---|---|---|---|
| Sensors | Flame detection sensor & Temperature sensor | Humidity detection sensor | Acceleration sensor & Gyro sensor | Wind speed detection sensor |

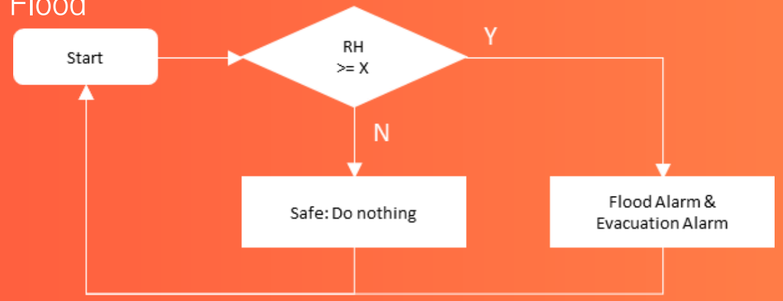
Fire




Earthquake




Flood




Typhoon

= Same with Flood detection Algorithm

# SYSTEM USER INTERFACE

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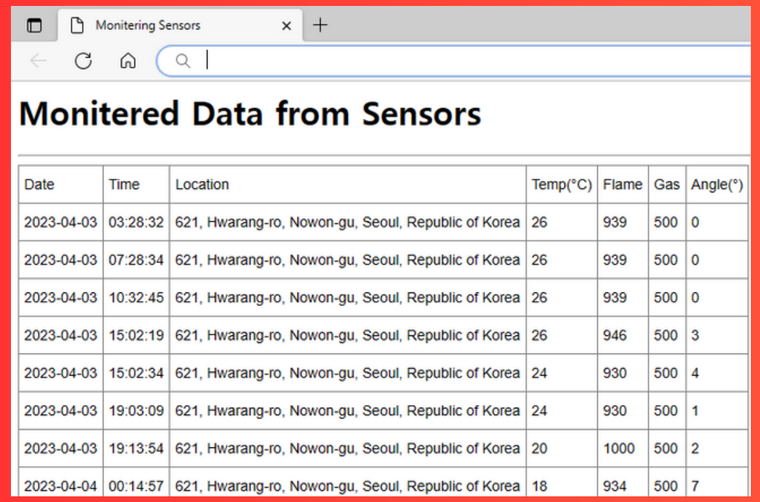
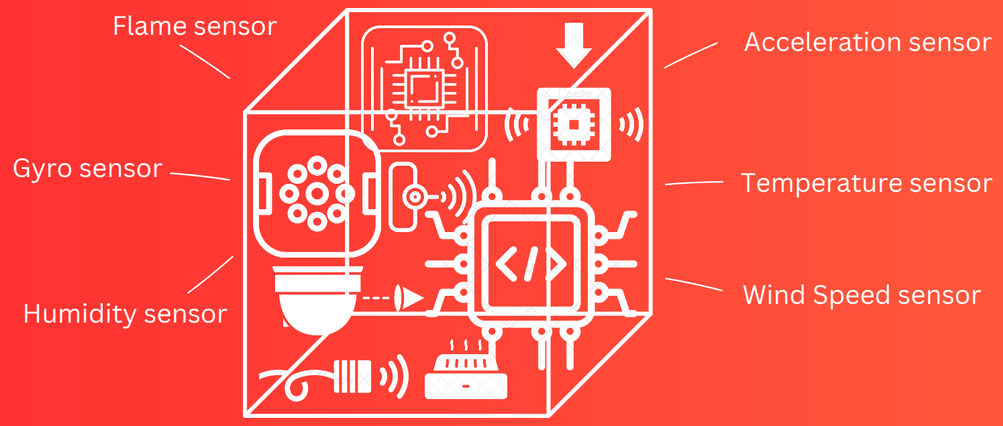
## Monitoring page for administrators

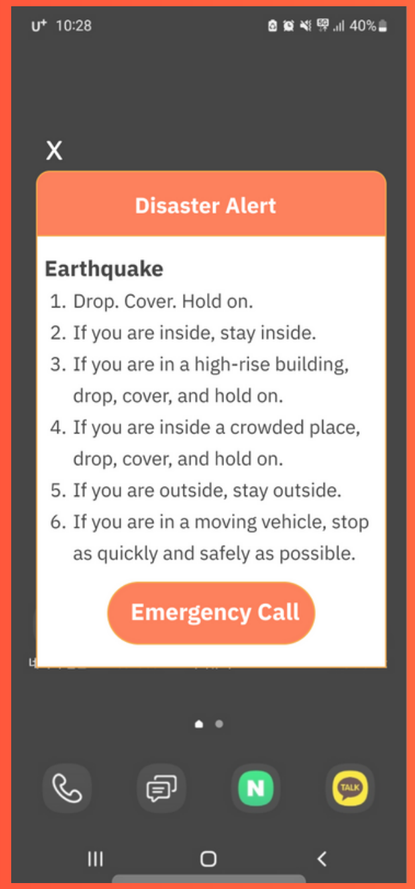



| Date | Time | Location | Temp(°C) | Flame | Gas | Angle(°) |
|---|---|---|---|---|---|---|
| 2023-04-03 | 03:28:32 | 621, Hwarang-ro, Nowon-gu, Seoul, Republic of Korea | 26 | 939 | 500 | 0 |
| 2023-04-03 | 07:28:34 | 621, Hwarang-ro, Nowon-gu, Seoul, Republic of Korea | 26 | 939 | 500 | 0 |
| 2023-04-03 | 10:32:45 | 621, Hwarang-ro, Nowon-gu, Seoul, Republic of Korea | 26 | 939 | 500 | 0 |
| 2023-04-03 | 15:02:19 | 621, Hwarang-ro, Nowon-gu, Seoul, Republic of Korea | 26 | 946 | 500 | 3 |
| 2023-04-03 | 15:02:34 | 621, Hwarang-ro, Nowon-gu, Seoul, Republic of Korea | 24 | 930 | 500 | 4 |
| 2023-04-03 | 19:03:09 | 621, Hwarang-ro, Nowon-gu, Seoul, Republic of Korea | 24 | 930 | 500 | 1 |
| 2023-04-03 | 19:13:54 | 621, Hwarang-ro, Nowon-gu, Seoul, Republic of Korea | 20 | 1000 | 500 | 2 |
| 2023-04-04 | 00:14:57 | 621, Hwarang-ro, Nowon-gu, Seoul, Republic of Korea | 18 | 934 | 500 | 7 |




Sensor Schematic Diagram

## Disaster Alert for users




In the event of a disaster, each embedded sensor detects it and sends a notification to the connected user's mobile phone.

When user click the Emergency Call button, it connects to the camera and allows users to report disaster immediately, and location is also linked through GPS to enhance reporting efficiency

## Emergency call with GPS