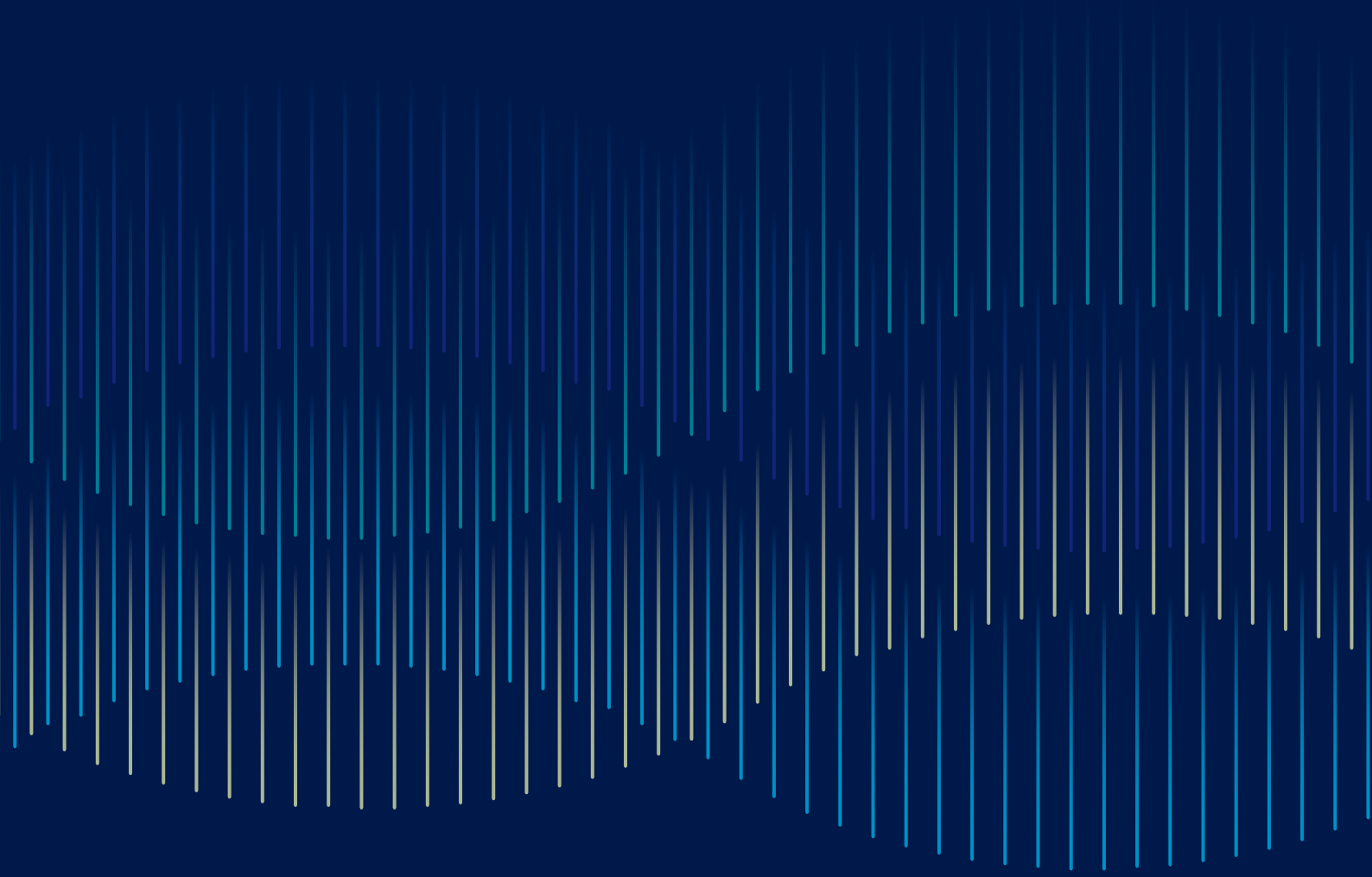
DATS
Data Analytics Trade System

AIoT BASED **FLOOD WARNING SYSTEM**

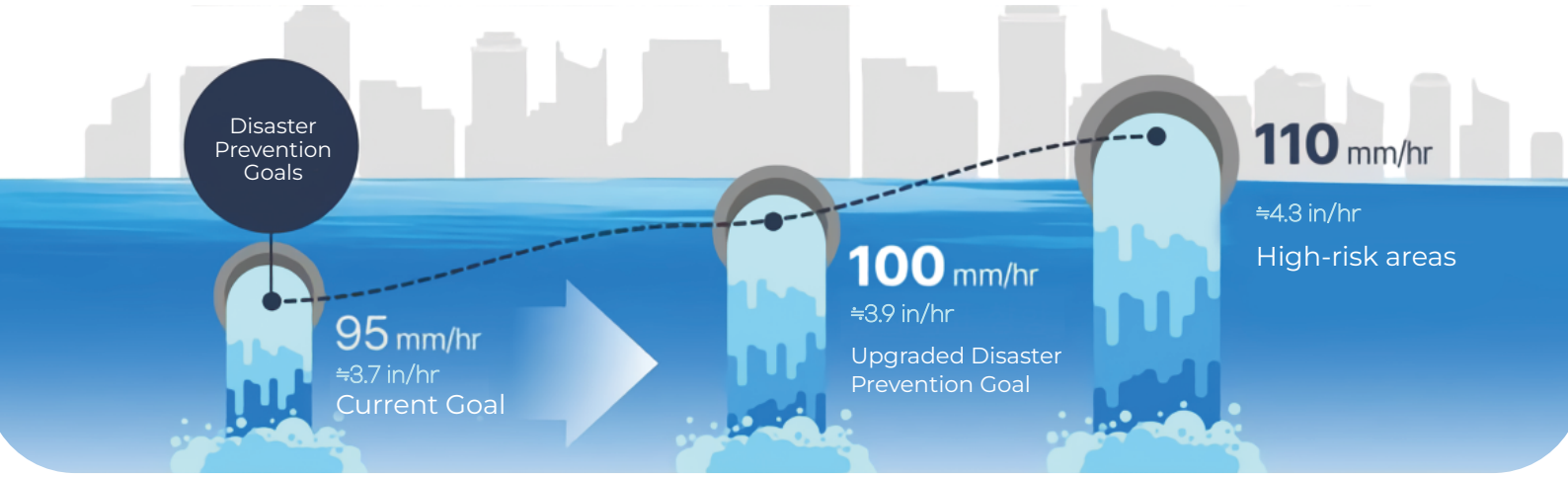
- Affordable IoT Device
- AI Prediction



CONTENTS

INEVITABLE CATASTROPHIC EXTREME DOWNPOURS

Estimated construction cost and time according to
the raised disaster prevention goal of Seoul, the capital of Korea



Cost of 5mm/hr improvement:
≒ 0.2 in/hr

17 Billion USD
Over 50 years

Observed precipitation of August 22

Gangnam-gu, SEOUL
116 mm/hr
≒ 4.6 in/hr

Dongjak-gu, SEOUL
141.5 mm/hr
≒ 5.6 in/hr

Inability To Take Preemptive Measures Before Flooding, Difficulties in Voluntary Citizen Response

Government offices

Standard Operating Procedure (SOP)

Advisory → Watch → Warning → Emergency

When? How?

citizen

AFFORDABLE IoT INSTRUMENTATION BASED AI PREDICTION

Preparedness / Evacuation

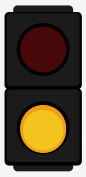
INTUITIVE ALARM

STEP1 Preparation

Prohibition of entry

Installation of water barrier

This area is at high risk of flooding.
For your safety, avoid the area
and prepare for evacuation immediately.

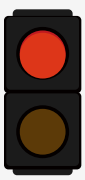


STEP2 Evacuation

Serious Flooding Risk

Evacuation and Escape

This area is currently at high risk of significant flooding. For your safety, evacuate immediately.



BE PROACTIVE WITH AI PREDICITON

NORMALLY

3 hours later

EXPECT FLOODING TO START

Restricting Access
water barrier installation

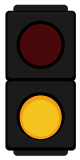
3 hours later

SERIOUS FLOODING RISK

Emergency Evacuation & Escape

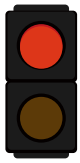
FLOODING

Preparation



This area is at high risk of flooding. For your safety, avoid the area and prepare evacuation immediately.

Evacuation



This area is currently at high risk of significant flooding. For your safety, evacuate immediately.

Flooding Occurs
10cm
≒ 4 inches

Severe flooding
30cm
≒ 12 inches

IOT DEVICE

← LTE

DATA BASE

Monitor

Report

WEB APP

Government office

Monitoring and reporting through app and web

Report

On-site response

Restricting Access, Water barrier installation

Report

WEB APP

Fire station

Monitoring and reporting through app and web

Report

Automatic water barrier

Currently under development

AI Prediction →

FLOOD ALERT

High-output warning lights and speakers can be utiltzed

ENERGY-INDEPENDENT INTEGRATED PRODUCTS

HOW TO BUILD A MONITORING SYSTEM

WATER LEVEL METER

INUNDATION DEPTH METER

ALARM LIGHTS AND SOUNDS

Operates on ultra-low power system, with a 14-day battery life without recharging

With LTE Network Freedom of communication

Easy installation with no need for power and network infrastructure

3-year data quality & Maintenance

SEOUL GANGNAM-GU DEMONSTRATION PROJECT

WATER LEVEL METER

Measures river water levels

INUNDATION DEPTH METER

Measures water levels in flooded roads and residential areas

RAINFALL METER

Measures rainfall levels

PLANNED CONSTRUCTION EXPANSION

WATER LEVEL METER

Yangjaecheon, Tancheon, Segokcheon
1-minute water level data collection

10 locations | Leverage river flood prediction

INUNDATION DEPTH METER

Low-lying areas and flood risk areas rainwater gutters
1-minute water level data collection

90 locations | Used for flood predictions

RAINFALL METER

1-minute rainfall measurement

3 locations

WARNING SYSTEM

Commands are received from the server based on risk prediction

10 locations | Post-Verification Expansion

MONITORING SYSTEM

Monitoring system integrating flood status, prediction, and response management

OPEN GOVERNMENT DATA

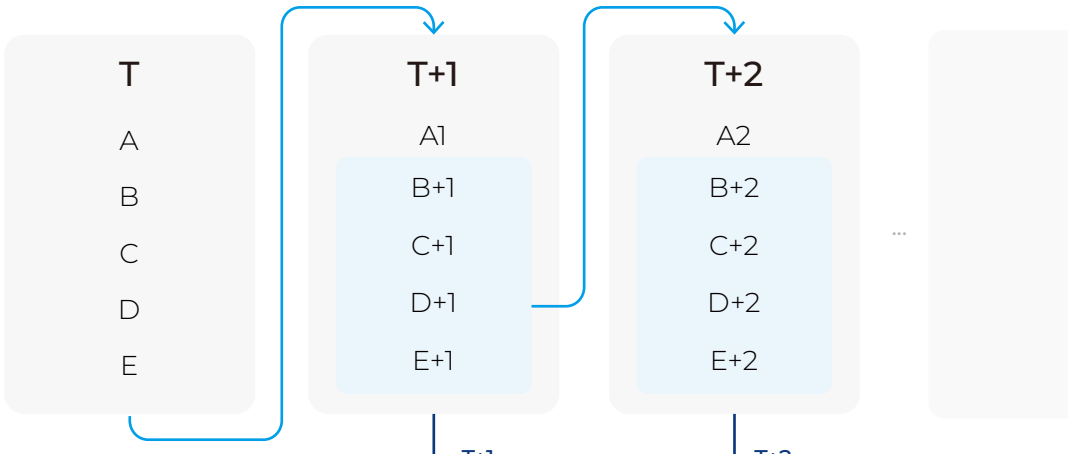
Linking existing measurement data, including Han River and dam water levels

04 Service Details

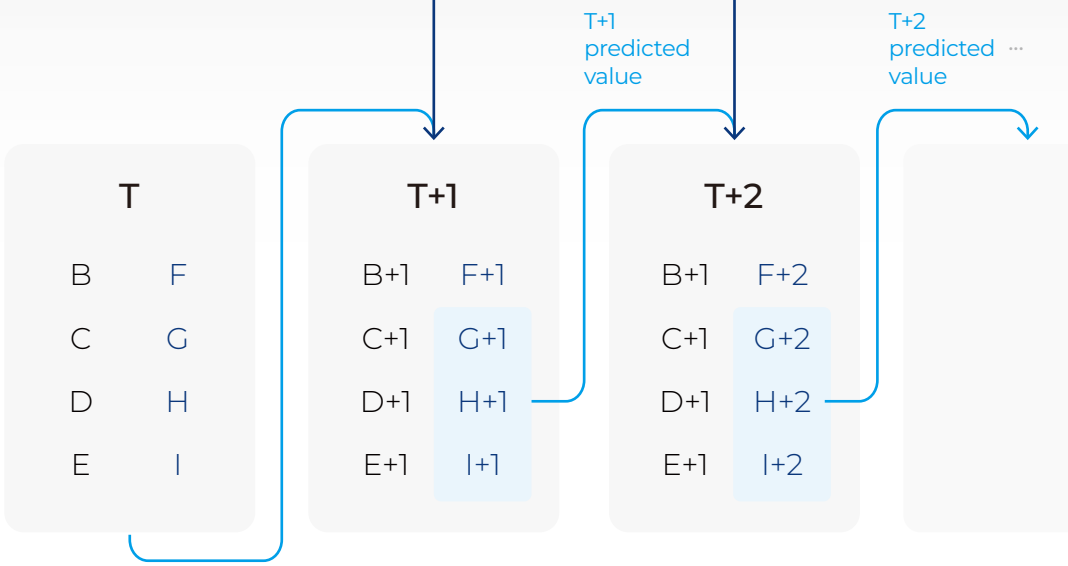
Building a Predictive System(example)

EXISTING POINT PREDICTION

Precise Forecast



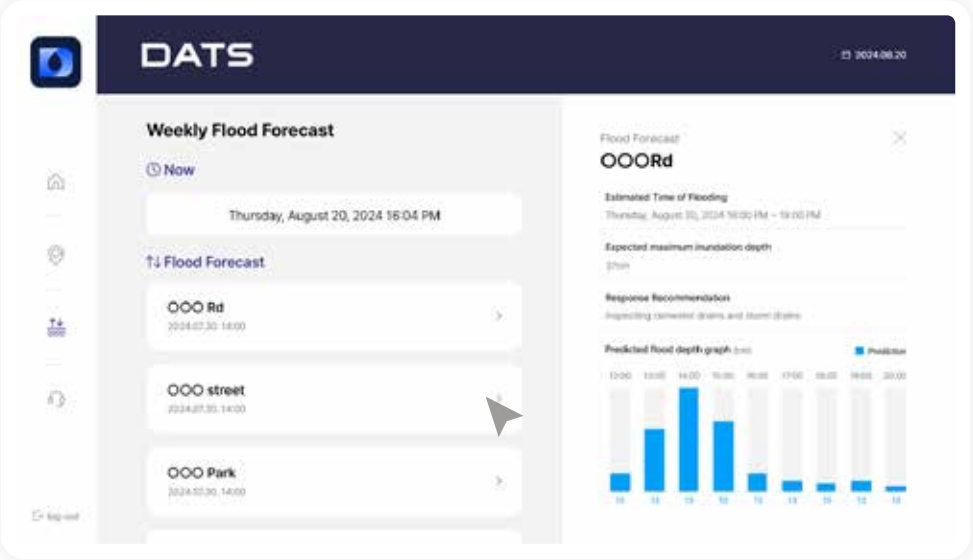
PREDICTING NEW MEASUREMENT POINTS



VARIABLE

A : Weather station rainfall
An : n Timestep Weather Forecast
B : Banpo water level
C : Cheongdam Water Level
D : Daechi Water Level
E : Daegock water level

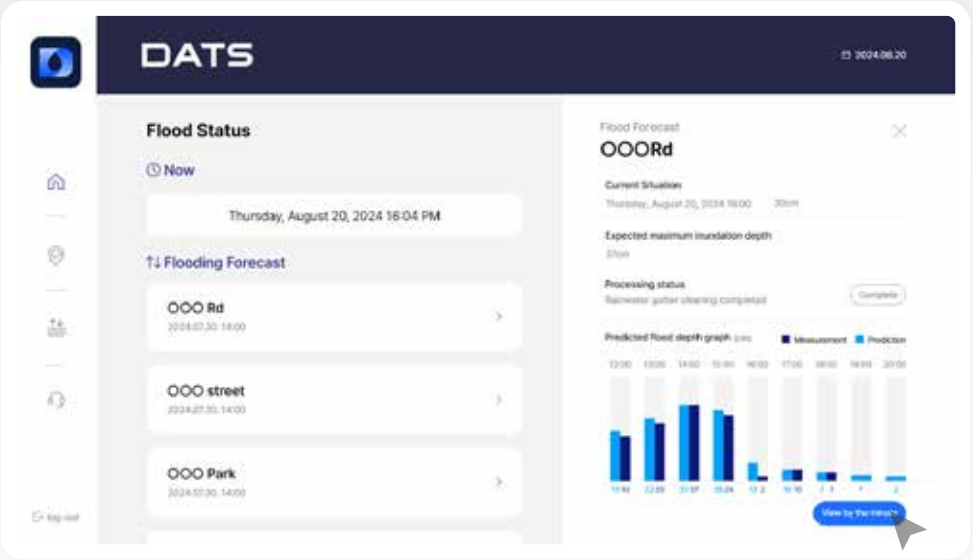
F : New Instrumented Rainfall
Fn : n Timestep-adjusted rainfall
G : Yeongdong 4 Bridge Water Level
H : Daechi Station Intersection inundation
I : Flooding in front of Seonjeongneung Park
+n : n Timestep Prediction



Flood Prediction Examples

Predict by applying regional weather forecast

Forecast at least 2 days in advance



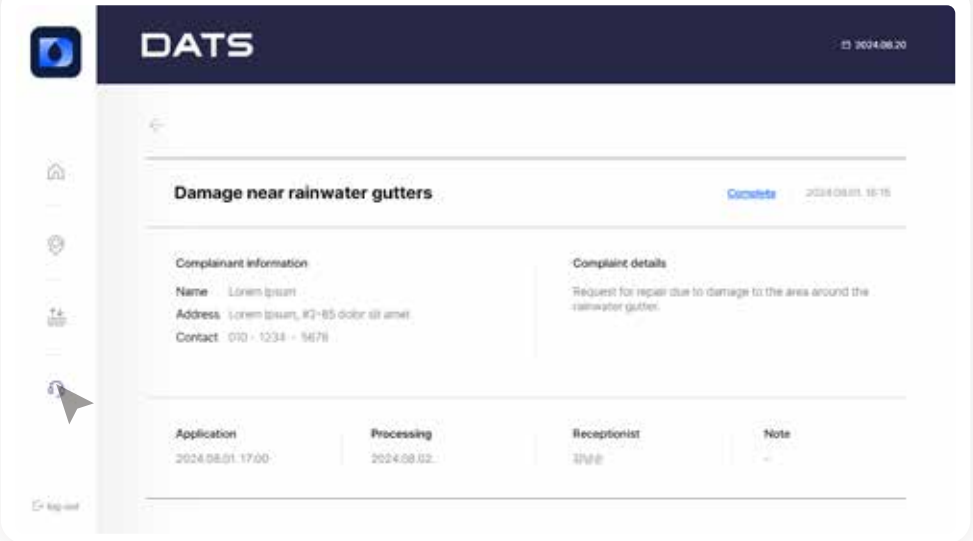
Flood Monitoring Example

Flooding occurrence and termination

Current Situation

Cause analysis after occurrence

Data analysis and history management



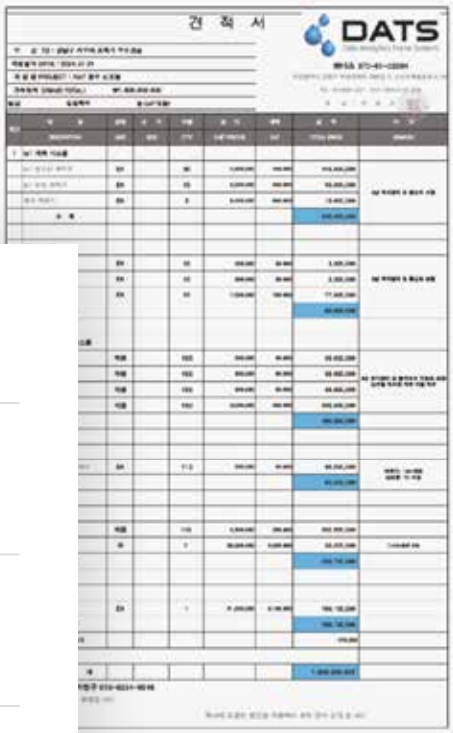
Civil complaint management and on-site response system

collaborating with fire departments and police stations to address civil complaints

05 Budget Required

EXAMPLE OF CONSTRUCTION COSTS

May Vary significantly by Location



Construction Costs Cost of measurement and flood warning system construction	746,915 USD
Web/App Development Costs Monitoring & Predictive Systems	373,457 USD
Other expenses PR Production	74,691 USD
Total	1,195,064 USD

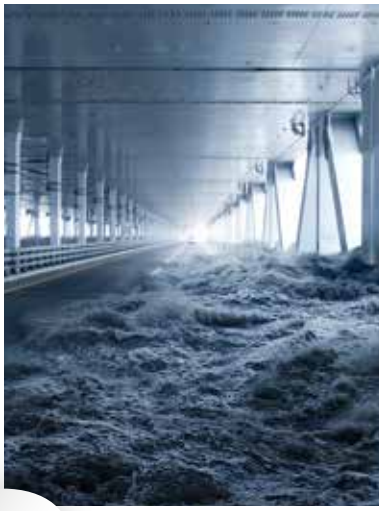
06 Related Certifications & Patents

ALERT SYSTEM TO ENSURE TIMELY RESPONSES
DURING FLOODING

WHICH NEWS DO YOU WANT?

150mm Rain Bomb Pouring Down In Seoul In an Hour

A series of disappearances and power outages occur. A 911 responder goes missing during a rescue operation...



VS

Gangnam-gu Minimizes Damage From Record-Breaking Rain Bomb!

Residents were calmly encouraged to evacuate.
Alarm system worked properly...

DATS
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AIoT BASED FLOOD WARNING SYSTEM

Join DATS, a leader in AIoT technology
for addressing climate change, water disasters,
and resource management.

E-mail. dats21@waterdats.com
Homepage. https://waterdats.com