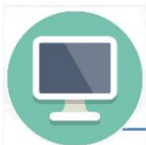


# AI intelligent technology description



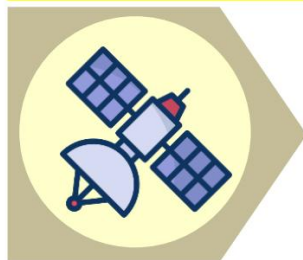
## AI sand source identification system



Pain point

problem manual/time-consuming

Traditional bare ground analysis process, 4 times per year



Satellite image data GIS naked analysis and unmanned vehicle aerial photography

5 days



Circle the sand source

1 day

solution



AI automatically identifies classification area

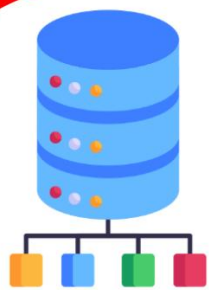
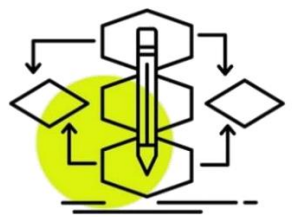


Image dataset segmentation model



Test results

- Blue - general sand source
- green - vegetation
- red - water area
- yellow - gravel
- Purple - water-bearing sand source



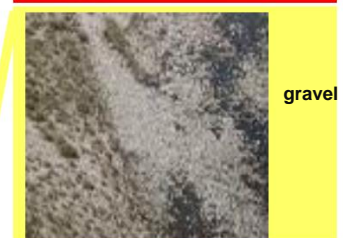
banshayua



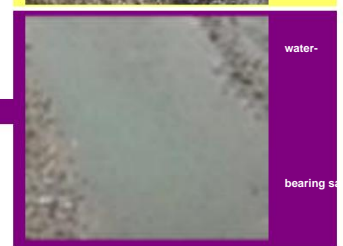
vegetation



waters



gravel



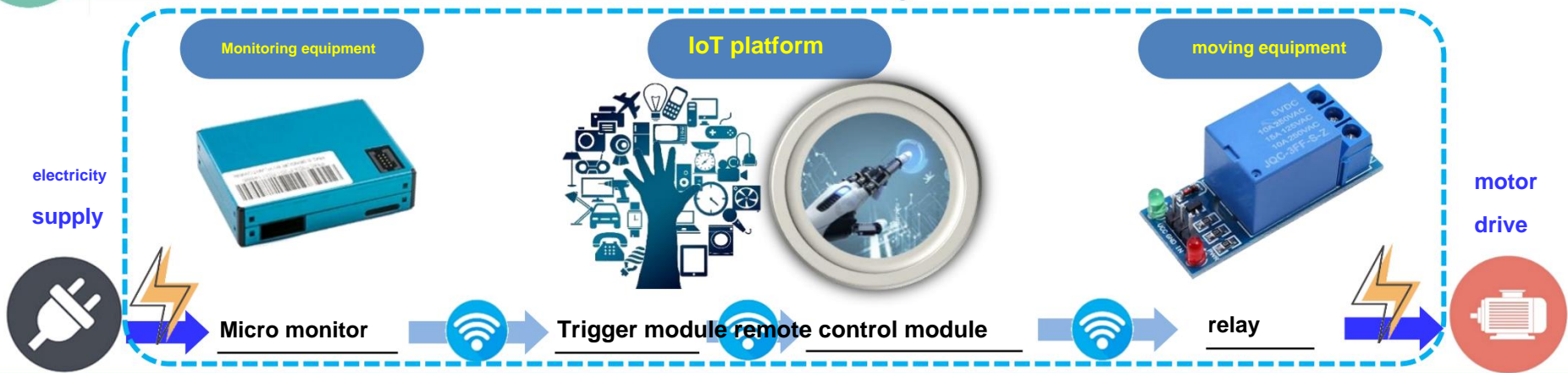
water-

bearing s

# AI intelligent technology description



Set up AI smart protection network in potential areas (river)



## 跨機關合作應用實例

Third River Branch/Ministry of Agriculture/Community Development Association/Cleaning Team/Environmental Protection Bureau



2022-Da'an River Thirty-A Embankment



2023-Daijia River Toyosu Embankment



Start: PM10>150  $\mu\text{g}/\text{m}^3$   
Off: PM10<126  $\mu\text{g}/\text{m}^3$

# AI data integration instructions

## Calculate aerial trajectory



γ Flight height: 52m from the high-speed railway bridge to the sea estuary  
 γ Shooting angle and orientation: 23 degrees and 90 degrees  
 γ Flight speed: 28~35m/h



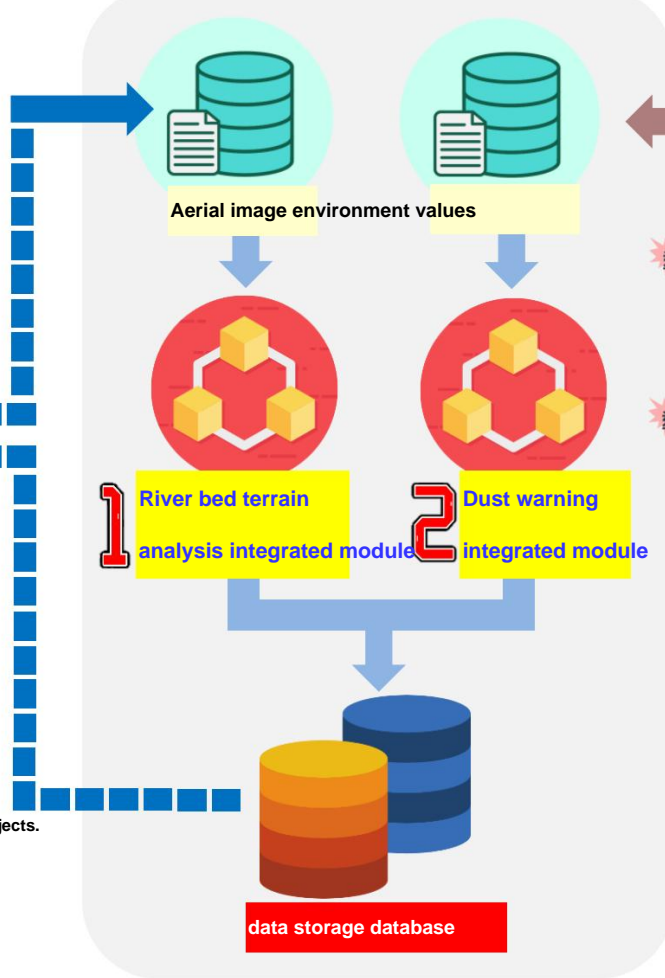
Upload aerial video

γ River bed landform analysis report  
 3-day forecast

## Riverbed landform analysis module



The AI sand source identification system combined with the river dust early warning system can quickly identify potential areas where river dust is prone to occur and set up AI intelligent protection networks to reduce the harm of river dust to the public.



導入前



導入後



## Dust warning module

Regularly obtain public air quality or meteorological data from the Ministry of Environment and Meteorological Administration to predict dust conditions in the next three days. Helps warn residents and schools near rivers in advance to prepare for possible dust events

預報結果			
日期	2023/12/07	2023/12/08	2023/12/09
PM <sub>10</sub> 濃度 (μg/m <sup>3</sup> )	39	39	45
濃度等級	不發布	不發布	不發布

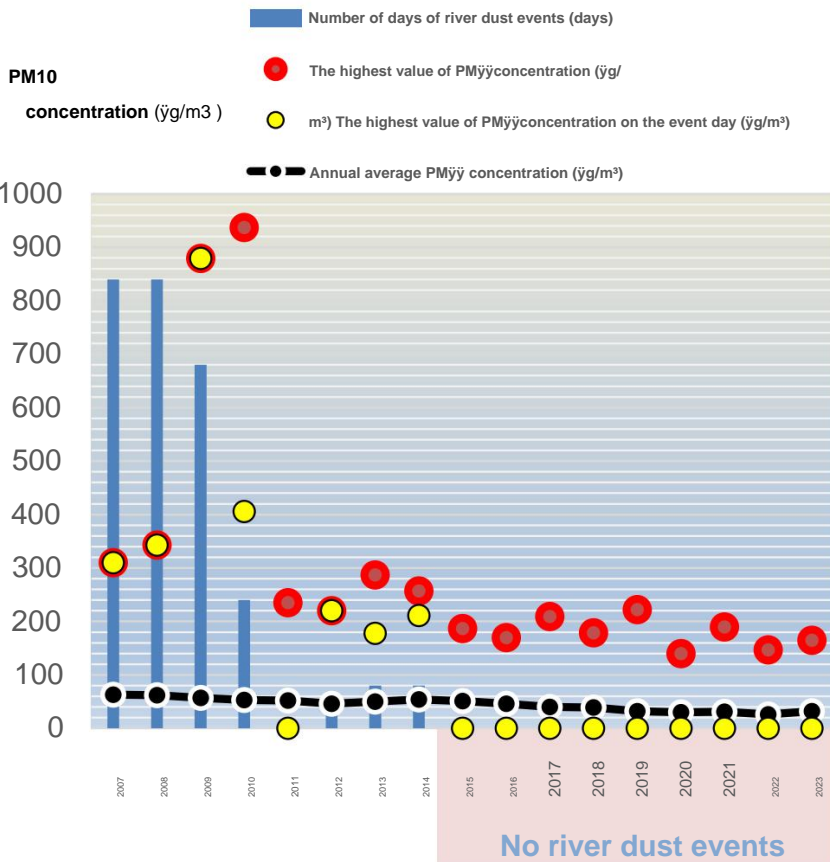
# River dust improvement results



Statistics on the day of the incident and the degree of improvement in people's perception of dust.

Taichung City's first-of-its-kind successful model for dust improvement in rivers in Taichung City can be replicated in other rivers with serious dust levels across the country.

consecutive years No river dust events



The degree of improvement increased to 81.8%

