



Creating a centralized and integrated flood control system

Using analysis of real-time data to provide a mitigation and early warning system for flooding

JaWaRa achieved this using

- IoT Technology • Machine Learning • Visual Analytics • Forecasting • Predictive Analytics

SAS Hackathon 2023 • Asia-Pacific Regional Winner • Industry Winner for Public Sector • Technology Winner for Machine Learning • Public Sector Track

Challenge

Jakarta is sinking. Already in a lowland area, the city has become more vulnerable to flooding because of land subsidence and more extreme weather events.

- In early 2020, some areas had floods more than 3 meters deep.
- There are 13 separate rivers in Jakarta that may contribute to flooding.
- An integrated and automated approach is essential to manage flood risk and provide early warning to residents.

Innovation

This solution uses one of the 13 rivers in Jakarta, the Ciliwung, as a pilot, drawing on IoT data from sensors placed in each of the 43 pump houses along the river.

JaWaRa:

- Used SAS IoT Analytics to monitor the water level of each station.
- Created a model to predict the water level over the next one to six hours, and recommend the height of water gate that must be opened to prevent flooding.
- Linked predictions to an app to increase access to the data, and provide an early warning system for residents.

Impact

This solution is designed to both prevent flooding and provide warning to residents.

- It will enable the Water Resources Agency of Jakarta to create a plan to mitigate the impact of flooding.
- The government can also identify areas that are vulnerable to flooding.
- This approach has widespread applicability, and could be used anywhere that is vulnerable to flooding.

“Jakarta is expected to be a better city, and a safer home for everyone.”

Dudi Gardesi • Secretary • Water Resources Agency of Jakarta