IoT-based Peatland Monitoring with Data Analytics

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TECHNOLOGY

One of the factors of transboundary haze in ASEAN region is peatland forest fires. Ground water level (GWL) in the peatland can be an indicator for the peatland soil profiling. This invention predicts GWL using Machine Learning (ML) for a potential peatland forest fire estimation. The peatland data is based on GWL at Raja Musa Forest Reserve (RMFR), as well as soil humidity, soil temperature and other weather-related data. From the invention, GWL can be predicted using ML technique with a degree of accuracy.

CURRENT ISSUES

- **Manual Ground Water Level (GWL) reading every 2 weeks by forest rangers.**
- **Inefficient especially during draught or dry season**
- **Peatland forest fires could lead to transboundary haze**

IMPACT OF THE PRODUCT

NAPC, an IoT-based system for peatland monitoring is deployed at a peatland forest for better peatland management especially in obtaining real-time and accurate peatland data such as GWL, soil moisture, soil temperature and weather-related data.

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UPM, Mimos partner to develop IoT-based early warning system to curb peat fires

By Digital News Asia August 18, 2020

- During impending heatwave, peat forests are susceptible to fire
- New IoT system uses sensors to make monitoring of peat conditions easier

Well, it seems that on top of a global pandemic, Malaysians will now have to hunker down for a period of heat and dryness. The Malaysian Meteorological Department had recently predicted that the country will experience a dry spell caused by the Southwest Monsoon season, which is expected to continue

DR. ADUWATI SALI

PARA penyelidik UPM dan MIMOS bekerjasama dengan rerper hutan melaksanakan sistem IoT untuk memantau hutan paya gambut bagi mengelak kebakaran hutan.

PUSAT KECEMERLANGAN HUTAN PAYA GAMBUT NEGERI SELANGOR

PARA penyelidik dari UPM, MIMOS, juruterа-juruterа Loranet Technologies dan pegawai rerper hutan dari Jabatan Perhutanan Negeri Selangor (JPNS) di hadapan Pusat Kecemerlangan Hutan Paya Gambut Negeri Selangor.

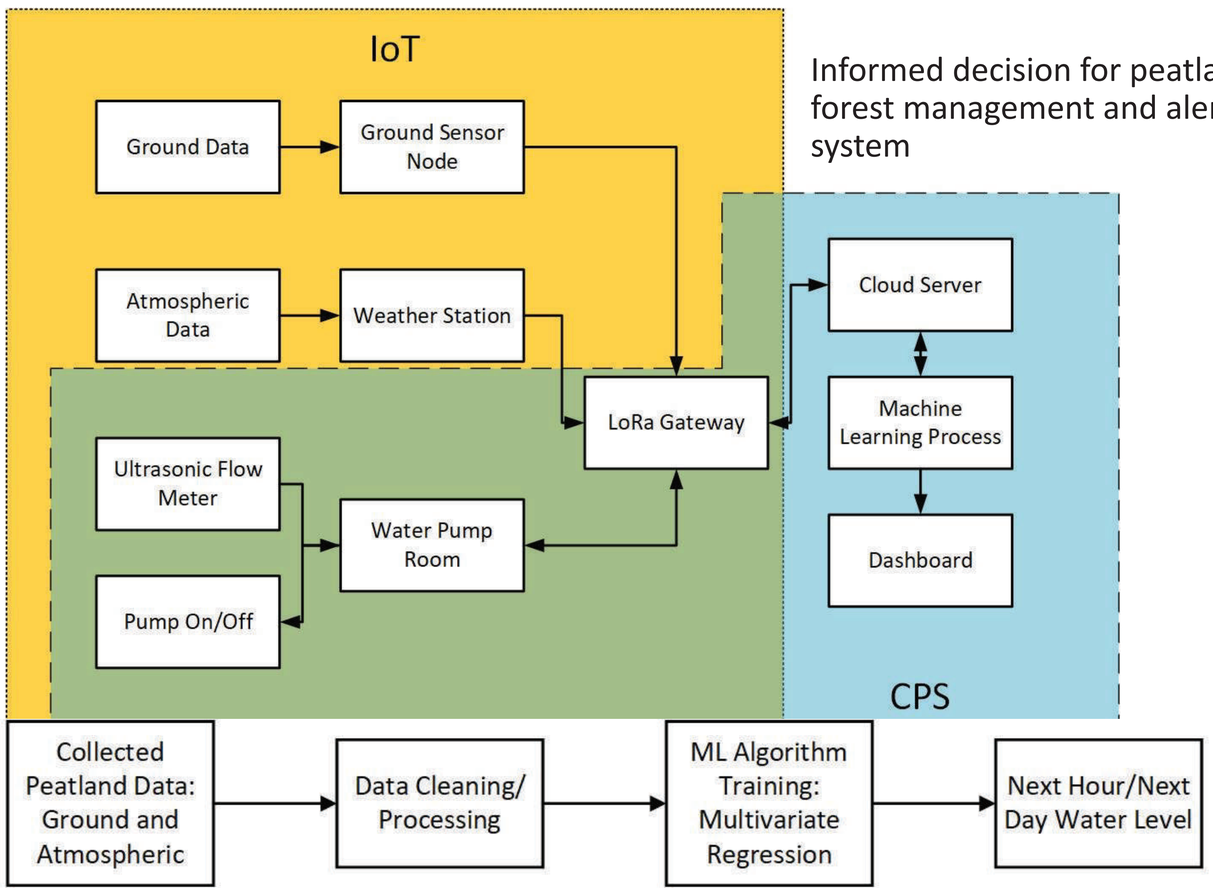
TERUSAN yang digunakan untuk memendingkan kawasan kering di hutan paya gambut agar tidak mudah terbakar.

IoT atasi kebakaran tanah gambut

Oleh FAIRUZ MOHD. SHAHAR

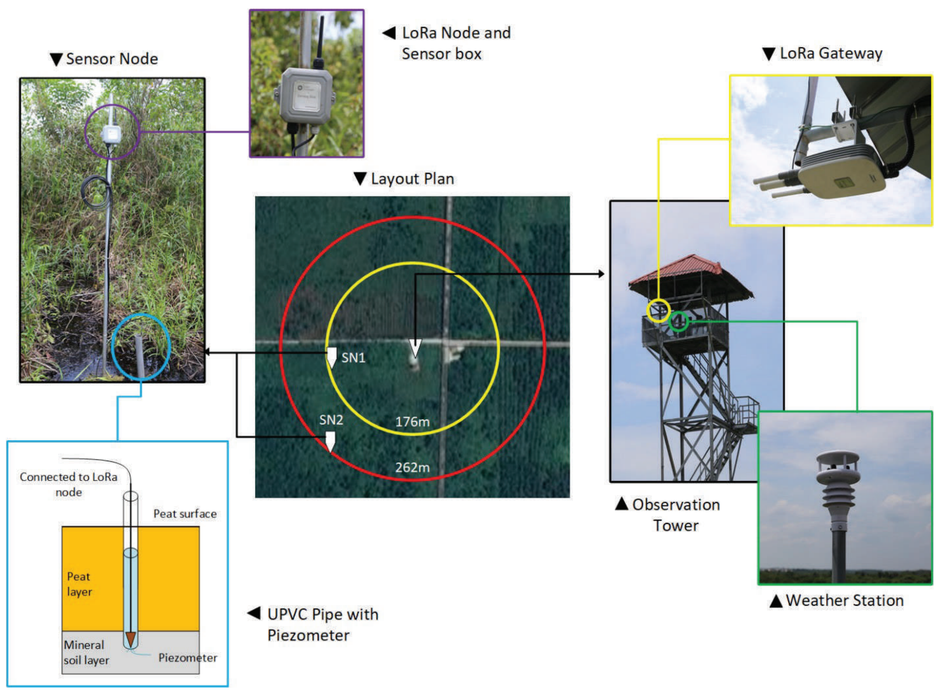
ANTENA LoRa dan stesen cuaca dipasang di menara untuk menghantar data paya gambut melalui IoT secara tanpa wayar.

USEFULNESS & APPLICATION



Informed decision for peatland forest management and alert system

INVENTIVENESS & NOVELTY



MARKET POTENTIAL

- **IoT-based peatland monitoring system**
- **Peatland data integration - Malaysia Indonesia and Brunei**
- **Community engagement**
- **Peatland data analytics for forest fire estimation**

TRL : 6 – Demonstration in Real Environment

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