Industrial IoT Business Experience & tinyML Opportunities

Apinun Tunpan
Chief Technology Officer
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apinun@smartsensedesign.com
About Me

Founder & Chief Technology Officer
SMART Sense Industrial Design

A photo during my visit to ICTP in 2014
Our collaboration with ICTP & NSRC

ICTP & NSRC's Wireless Sensor Networks Workshop in 2014

“Industrial” Digital Transformation Made Easy

Why do we mainly focus on IIoT?
- Market size
- Economic and Societal Impacts
- The amount of ‘money’ that potential buyers can pay.
Digital Transformation (DX) Made Easy

เราปรับปรุงเปลี่ยนแปลงกระบวนการผลิตโดยอาศัยเทคโนโลยีดิจิทัลได้อย่างไร?
Common Pain Points

Accidents & Injuries

Machine Breakdowns

Time, Quality and Costs
Common Gain Points  ลิงที่ช่วยเพิ่มผลงานให้เร้าได้

การวางแผนการผลิต  Planning & Scheduling
การติดตามเฝ้าระวัง  Monitoring & Tracking
การตรวจสอบควบคุมคุณภาพ  Quality Inspection
Some of the most important things in Industry 4.0 are **Data Making** and **Acting upon that Data**.
Typical IIoT Value Creation for our Industrial Customers

- Internet of Things
- Dashboard
- SMART Production Monitoring
- AI + ML ‘smarter’ things
Worker Safety Monitoring

IIoT + tinyML’s opportunities
- Improve worker’s safety.
- Prevent bodily injuries.
Burner Monitoring

IIoT + tinyML’s opportunities
- Better Temperature Anomaly Monitoring
- Fewer production defects and wastes
Block Heating Element Monitoring

IIoT + tinyML’s opportunities
- Better Temperature Control
- Better quality & lower productivity losses
Motor Vibration Monitoring

IIoT and tinyML’s opportunities
- Motor’s health
- Alarms on abnormal vibration or temperature
Cycle Time & Productivity Monitoring

IIoT and tinyML’s opportunities:
- Item counting & cycle time monitoring
- Machine breakdown status
Leather Soaking & Tanning Process (Industrial Agri Tech)

IIoT and tinyML’s opportunities:
- Machine status monitoring
- Better scheduling & automatic control
SMART Vertical Farming

IoT + tinyML’s opportunities:
- Better monitoring and control of indoor environment
- Better monitoring monitoring and control of water pH, EC
- Better monitoring and control of CO2 gas concentration.
Energy Consumption Monitoring

IIoT and tinyML’s opportunities

- Better monitoring & classification of Power & Energy Consumption characteristics (KW, KVAR, KVA, PF, KWH)
- Detection of abnormal or irregular power/energy behaviors
Camera as a Sensor Testbed

tinyML’s opportunities:

Industrial Video Analytics Research Credits:
- Mr. Nisit Sirimarnkit, SMART Sense Industrial Design
- Dr. Chawalit Jeenanunta, Sirindhorn International Institute of Technology (SIIT)
Example: Counting of OK vs. NG

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Visual Identification of Truck’s Markers

IIoT + tinyML’s opportunities:
- Reduce Waiting time
- Improve Truck Routing/Scheduling
- Reduce CO2 emission!

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Thank you!

Q&A