

# Emerging IoT solutions from (South) Africa

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# Status

- Awareness of IoT is increasing
  - Transnet Ports Authority: Smart Port
- Multinationals working to establish a footprint
  - Microsoft, GE
- Network operators driving initiatives
  - MTN (IoT Conference & Awards)
  - Sigfox (SqwidNet)
- South African companies
  - lot.nxt (IoT.nxt framework)
- Research at TEI and Science councils
  - National Research Foundation Research chairs

# Challenges

- **Power**
  - National blackouts
  - Solar being used
- **Connectivity**
  - Expensive
  - Sigfox, Lora networks
- **Support & Maintenance**
  - Limited access to skilled maintenance
  - Local industries (Parsec)
- **Cost**
  - ESP8266, 5 USD. In South Africa 10 USD

# Fire Detection: Lumkani\*

- Informal settlements
  - Fossil fuels used for heating and cooking
- Fire early-warning system
- SMS alerting to community
- GPS location distribution to emergency response



**LUMKANI**  
PROTECTING AGAINST FIRES

\*<http://lumkani.com/>

# Smart Water Handpump

- Water, Sanitation and Hygiene (WASH) solution by Oxford (UK)
- Remote monitoring of handpumps
  - Accelerometer & GSM
- Pump usage (e.g. maintenance required)
- Daily & seasonal patterns
- Proof-of-concept operational in Kenya



<http://www.ox.ac.uk/news/2015-07-02-'smart-handpumps'-bring-reliable-water-service-rural-africa>

# Smart Water Management System

- Water leakage detection in a municipal water infrastructure
- LoRA based
- Use dynamic hydraulic models
  - Leak location & detection



# Insights

- Every thing is now IoT
  - And it already has been done & solved (impression)
- For venders:
  - Must have valid business case
  - Must already be mature and operational
- Tension between R&D vs Operational
- High costs are limiting
  - ESP8266: 5USD vs 11USD
- Continuity – movement of people in private and public sectors
- Vandalism and crime have big effect
- Policy & Regulation need to be established

**Thank you**



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