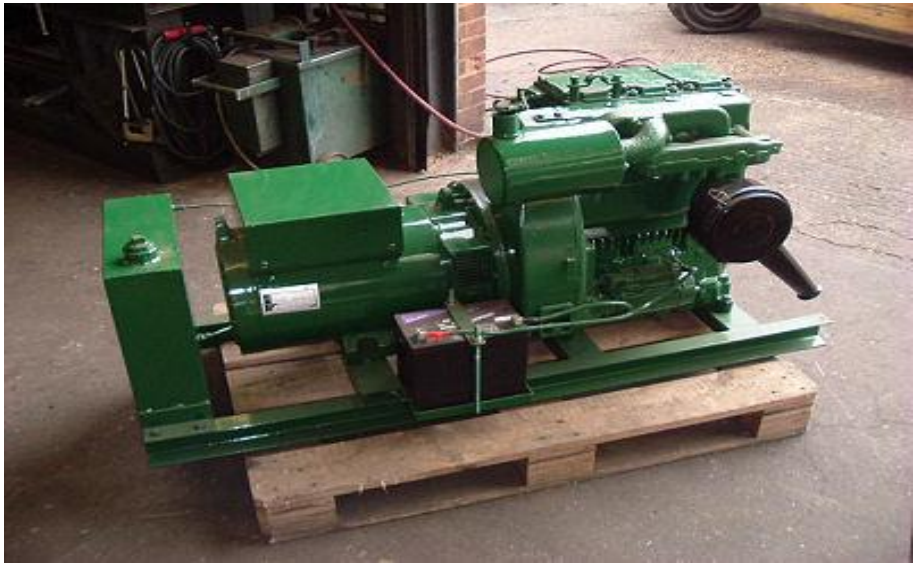
JKR's Industry 4.0 Aspirations In Line With UMW

1. From Legacy Mechanical into Electronic Engine: In-House Development by UMW
2. Real Time Fleet Management
3. Evolution of IoT-GenSets to Autonomous Machines

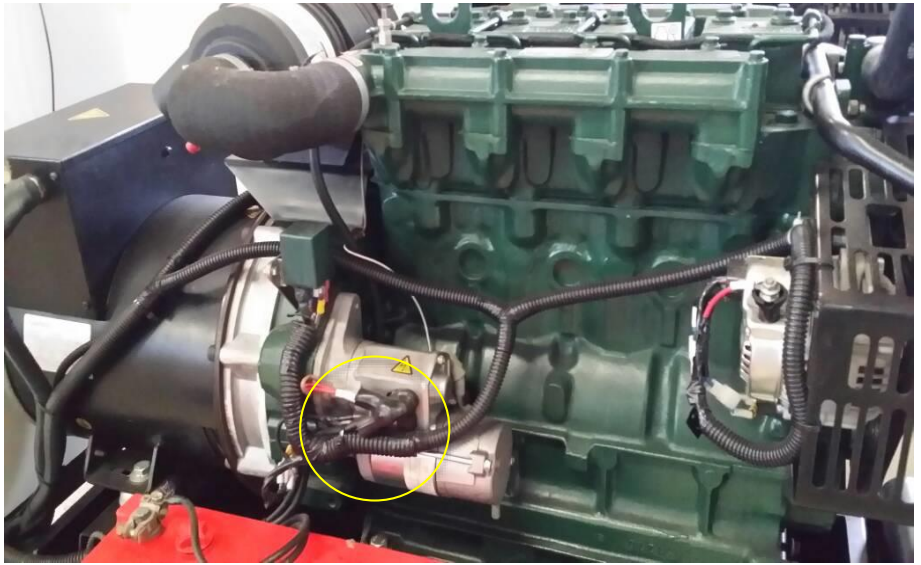

Lister Petter Diesel
Engine
Model : LPW 4
honor 8Pro


Lister Petter Diesel
Engine
Model : LPW3 27
honor 8Pro

LEGACY ENGINES



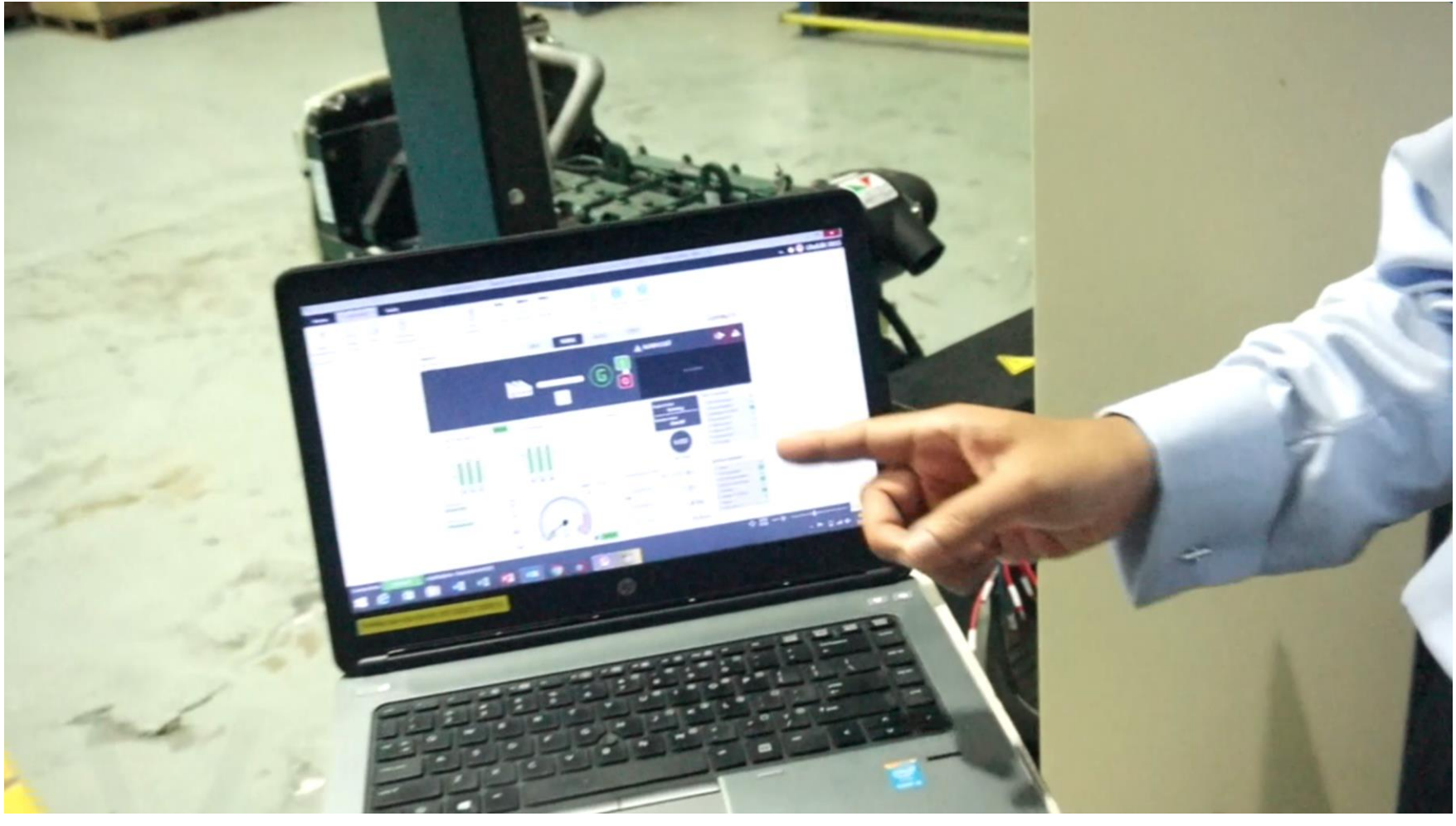
INTEGRATION OF IOT SENSORS INTO LEGACY ENGINES




CLASS 1
GROUPS A,B,C,D

OLD LEGACY MECHANICAL ENGINES CONVERTED IN-HOUSE TO BE ELECTRONIC

OLD LEGACY MECHANICAL ENGINES CONVERTED IN HOUSE TO BE ELECTRONIC



IoT Devices

1. Generator Set

2. Sensors

3. Controller

4. Remote Monitoring Communication Modules

5. Monitoring Devices

Data Analytics & Visualization

1. Real-Time Data & Descriptive Analytics

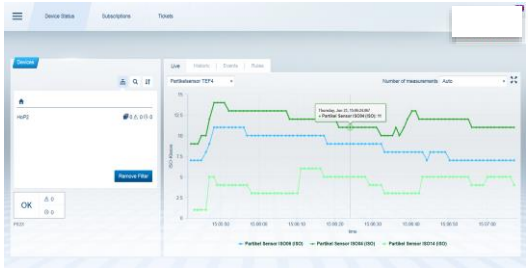
2. Power Generation Equipment Location Capacity Utilization Optimization

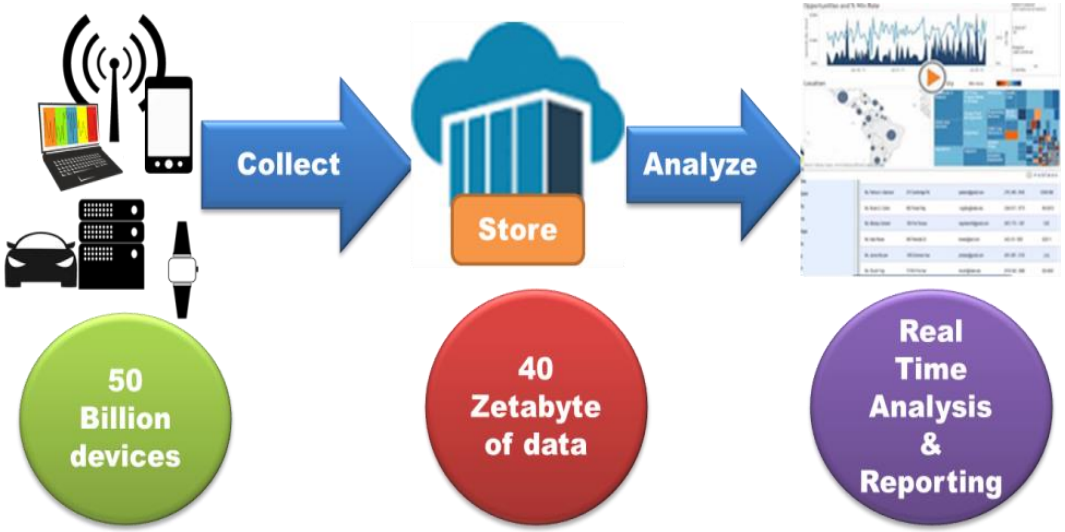
3. Trending and Predictive Analytics

IO Link Sensors

Controllers and Panels

Monitoring Devices




Collect
Store
Analyze
50 Billion devices
40 Zetabyte of data
Real Time Analysis & Reporting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"WE HAVE TO GO OUT FOR DINNER. THE REFRIGERATOR ISN'T SPEAKING TO THE STOVE."

FAQs









RUSSIA
JAPAN
N.KOREA
S.KOREA
MONGOLIA
KAZAKHSTAN
TURKEY
GEORGIA
ARM.
AZ.
LEB.
SYRIA
ISRAEL
P.T.
JORDAN
IRAQ
UZBEKISTAN
TURKMEN.
KYRG.
TAJIK.
IRAN
KUW.
AFG.
BAHR.
QATAR
SAUDI
AR
YEM
PAKISTAN
NEPAL
BHU.
BANG.
INDIA
TAIWAN
MYAN-
MAR
LAOS
VIETNAM
THAI-
LAND
CAM.
PHILIPPINES
BRUNEI
MALAYSIA
SING.
SRI LANKA
MALDIVES
EAST TIMOR

What is the future of IoT

All GenSets and other rotating equipment applications (eg. pumps, compressors, etc)

How do you manage your gen sets and industrial engines today?

How do you manage your gen sets and engines today?

What are the issues you are facing today?

How and who are solving the issues?

Power down? When there is no electricity from the mains?

Health of gen sets? Maintenance of the gen sets?

Do you have to have people? People to go on site? Technical people?

Truck rolls? From a distance away? Go there again?

How can IoT on gensets help JKR in managing its industrial engine or genset assets better?

1. *Pre-emptive vs preventive maintenance*
2. *Monitor the health of GenSets and to schedule maintenance*
3. *Supports homogeneous & hybrid needs*

What do you mean by being able to manage assets better? Do you have any examples?

1. *Managed power generation*
2. *Fuel management*
3. *Power generator right-sizing and optimization – Engine capacity vs load optimization*
    a. *Need based engine relocation*
    b. *Reduce power cost arising for over-sizing*
    c. *Forecasting future power need. Upsizing trends*
4. *Mobilization of support staff to focus on problematic areas vs non problem areas*

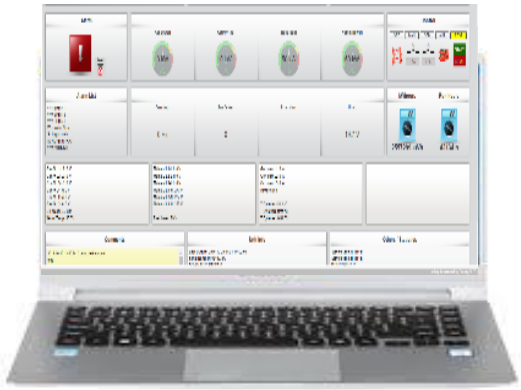
Immediate

1. Power generator right-sizing and optimization – Engine capacity vs load optimization
2. Need based engine relocation
3. Reduce power cost arising for over-sizing
4. Mobilization of support staff to focus on problematic locations vs non problem locations

Longer Term

1. Monitor the health of GenSets and to schedule maintenance
1. Pre-emptive maintenance instead of preventive maintenance
2. Fuel management

1 Real-Time Data & Descriptive Analytics



2 Power Generation Equipment Location Capacity Utilization Optimization

3 Trending and Predictive Analytics