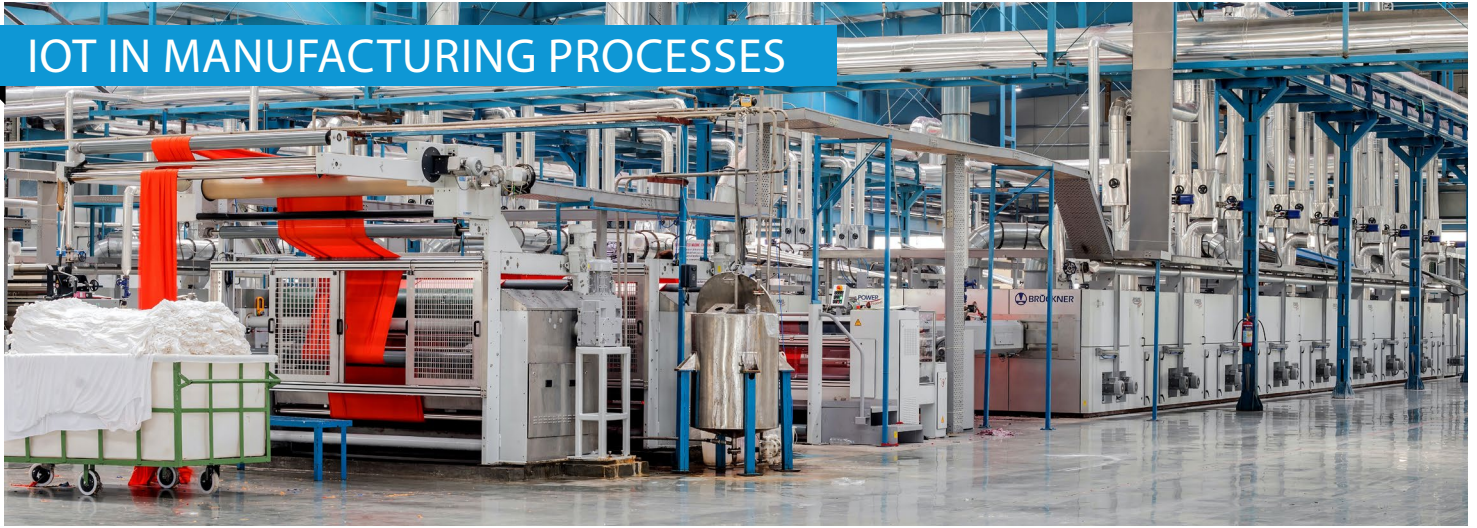## IOT IN MANUFACTURING PROCESSES

Industry 4.0: IoT in Manufacturing Processes

Every manufacturing plant is different. Buy every manufacturing plant can benefit from having more data to understand how to make processes more efficient, carry out predictive maintenance on machinery and ensure the health and safety of plant operatives.

Witness the power of predictive maintenance as industrial vibration sensors alert your engineering team to changes in machine operation. This gives them the opportunity to investigate any potential running issues and reduce or eliminate costly downtime.

We have identified a range of LoRaWAN sensors that can help to improve your processes and increase the productivity of your manufacturing plant. The sensors themselves are small and easy-to-install. They are battery-powered (with a battery life of up to five years) and communicate wirelessly with a centralised gateway. With no power cables, and wireless connectivity, the LoRaWAN sensors can be retrofitted to almost any area of the plant.

Join the IoT revoloution as we move forward into Industry 4.0!

KEY BENEFITS

- Simple installation with minimal disruption to operations

- Low cost, low maintenance sensors

- Battery life of up to 5 years

- Remotely access your data from the cloud

- Flexible: choose which sensors will be most useful to you

- Scalable: add more devices as your IoT system grows

The Challenges

Manufacturing processes are often complex, and we know that each area of your plant faces different issues. This use case aims to address the following key challenges that cover many different types of manufacturing:

- Ensuring safe working conditions across your site

- Monitoring raw material levels and feedstock tanks

- Using predictive maintenance methods to keep machinery running at optimal levels

- Identifying excessive power usage from machinery

- Recording plant conditions which may affect product quality

Alliot Technologies, Savile Mill, Savile Street, Huddersfield, West Yorkshire, UK, HD3 4PG | +44 (0) 1484 599 544 | contact@alliot.co.uk | www.alliot.co.uk

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Use Case: Industry 4.0: IoT in Manufacturing Processes

The Solution

Setting up a LoRaWAN IoT network is fairly straightforward. Our technical team will liaise with your IT staff and carry out as much of the provisioning and programming as necessary. We will map out your network areas while you select the appropriate gateways and sensors for your project. Here's an example of how it might work:
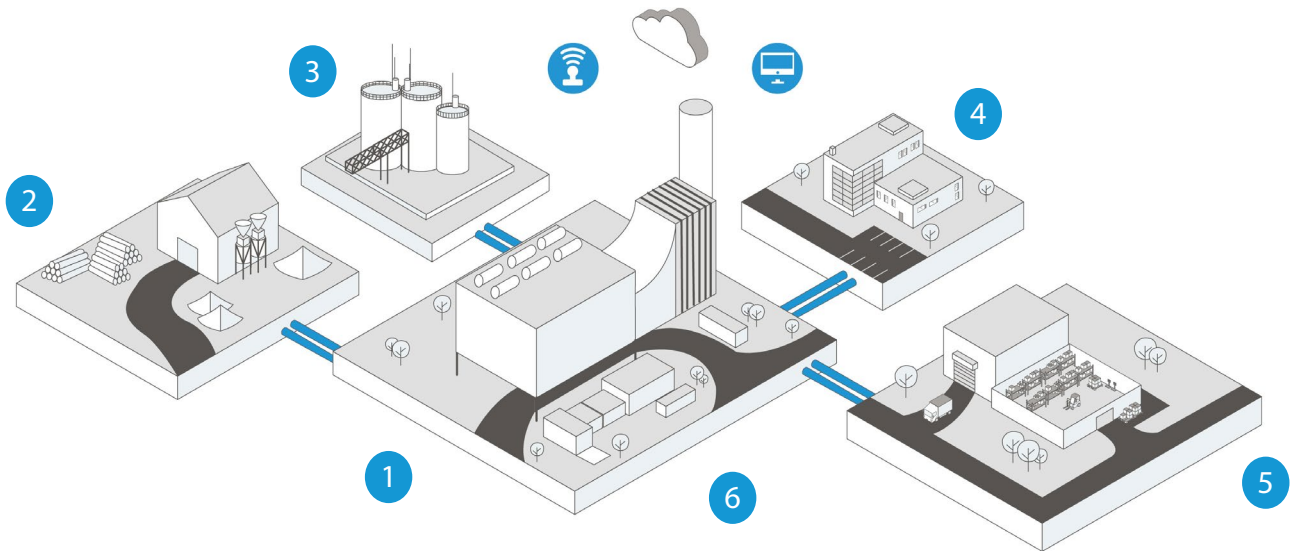
1 Record environmental conditions across different areas of the plant using the Netvox R718AB Temp & Humidity sensor. From product or raw material storage areas to QC labs; identify any areas where temperature and humidity fall outside your standard operating range.

2 Alert purchasing staff to low raw material/feedstock levels using the Tekelek Fill-Level Sensor for solid raw materials or the Tekelek Fluid Measurement Sensor for liquid feedstocks such as solvent or fuel tanks. These sensors can also be used to monitor waste bin fill-levels.

3 Be confident in your operative's safety with indoor air quality (IAQ) level monioring. The enLink Air is a wireless device that can measure particulates in the air (for dusty environments) and VOC levels. This can help you to identify areas where ventilation should be improved, or additional PPE is required.

4 Add in door open/close sensors with the Netvox R311A Door Contact Sensor. This can be used to alert you if a storage area is left open by accident. This can be really useful for refrigerated storage, or housing for dangerous chemicals or industrial cleaning products.

5 Smart machine monitoring can be done using the BOB Assistant Industrial Vibration Sensor. This device does it all; it's embedded algorithms can "learn" different modes of operation on a given machine. You can use it to carry out predictive maintenance and reduce machine downtime.

6 Monitoring power usage per machine with the Netvox R718N17 (single phase) or R718N37 (three phase) Current Meters can help you to identify machinery which isn't running correctly or highlight differences in efficiencies between production lines.

How it all works..

The sensors within your LoRaWAN network will collect data and send this (via radio waves) to a LoRaWAN gateway. This gateway either has ethernet connectivity or a 3G/4G SIM card to send the data to a LoRaWAN network server, and on to an application server. The information can then be viewed on a fully customisable user dashboard. This allows you to quickly and clearly analyse the data that's most important to your manufacturing process.