



**Max bridge**  
SOLUTIONS

# IOT Case Studies



# Smart Manufacturing:

## Production Line Automation Solution:

### Executive Summary:

Client is India's Largest Steel Service Centre Organization. Client organization was created to bring Steel Service Centre solutions for the first time to industrial customers and is the first organized Steel Service Centre capable of high tensile steel processing in India. The Company caters to a broad spectrum of industries and has emerged as one of the leading Automotive Steel Suppliers. World-class processing facilities and comprehensive quality assurance systems combine to make our client a benchmark in the steel service industry.

### Scope of Work:

Client is intends to implement an IoT based Production Line Automation to achieve an automated information on the Machine Running Condition.

### Current Condition of Production Lines:

Client has total 7 Production Lines in Total those are catering to the business . Each Production Line has a Uncoiler, a Recoiler and a Harbour. Raw Materials in the form of Steel Coils are fed into each machine as per order from the Customers and these machines processes these Coils into Finished Goods which are both in the form of Coils and Steel Sheets known as CTL or Cut To Length as per customers' ordered specifications.

Most of the machines are fitted with Sensors and PLCs to read the machine conditions



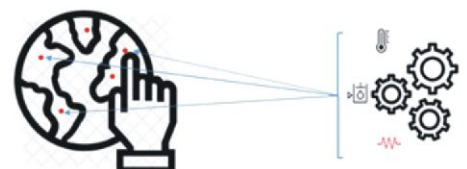
### Current Challenges on Production Line:

- There is no visibility on the conditions as well as performance of the machines.
- Data from the Machines are not available for viewing and also for use and analyzed remotely.
- Client experiences unscheduled machine Breakdown disrupting the Production.

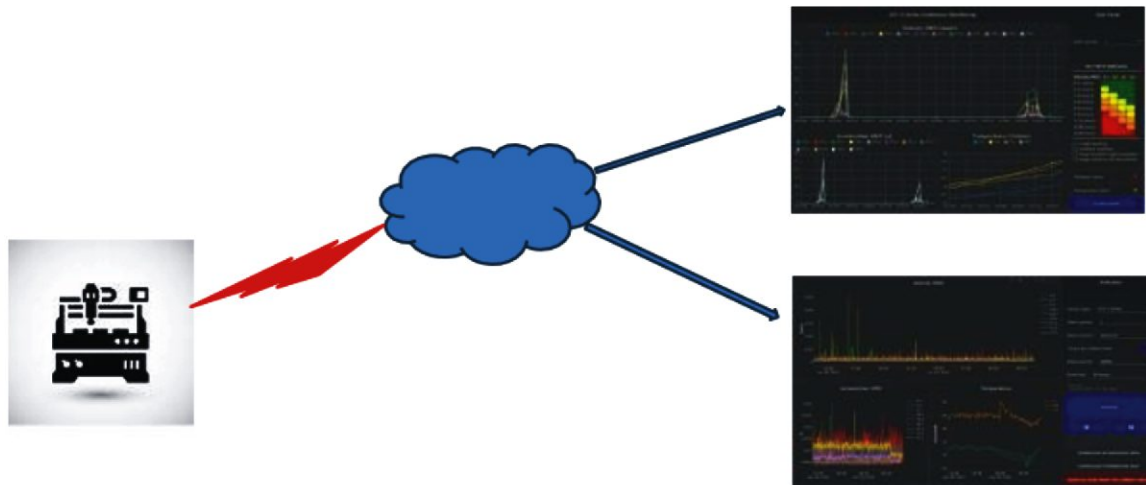
### Solution Proposed:

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- Machine Data from the production Line from all parameter will be made available live, remotely from any part of the world or as and where required.



- II. Machine data from the production Line from all parameters will be displayed on a Dashboard to authenticated Users.
- III. Preceding or historical Machine Data from the production Line from all parameters will



Be made Available for Viewing.



- IV. An interface will be made available for Client to utilize the data received from the machines to integrate with:

- Existing ERP (Production Line Asset ID & Inventory).
- Existing or to be Built MES (Manufacturing Execution System – Production Scheduling & other essentials).
- Existing or to be Built CMMS (Computerized Machine Maintenance System – This includes Predictive Maintenance as well as auto ticket raising or auto work order generation for maintenance job)



- Existing or to be Built WMS (Warehouse Management System – RM & FG Tracking and Location and Logistics).
- Integrate all the above-mentioned apps.

## Our Approach towards the Solution:

### Gathering The data From the production line with the followings:

#### 1. Sensors with Transmitters

- Vibration.
- Temperature.
- Pressure.
- Oil Level.

#### 2. Antenna or IOT Gateway.

#### 3. Software Interface

- Remote viewing of Real-Time Visibility of Sensor Reading and generated data in required format and unit by authorized users.
- Real-Time Graphical representation of the data received from Sensors visible remotely by authorized users.
- Visibility of Preceding or historical data remotely by authorized users.



# Benefits To Client

## 1. Increased efficiency :

The biggest benefit of IIoT is that it gives you the ability to automate, and therefore optimize your operating efficiency. Robotics and automated machinery can work more efficiently and accurately, boosting productivity and helping you to streamline your functions.

Additionally, physical machinery can be connected to software via sensors that monitor performance on a constant basis. This will enable you to have better insights into the operational performance of individual pieces of equipment as well as entire fleets.

## 2. Predictive Maintenance :

Nothing negatively impacts a manufacturing operation more than machine downtime. Experts estimate that the average manufacturer experiences 800 hours of equipment downtime a year, which adds up to an industry-wide cost of \$50 billion a year in unplanned expenses. What could be causing such drastic issues that manufacturers cannot operate? The answer is simple — lack of proper and predictive maintenance.

When maintenance in the manufacturing world is reactive rather than proactive, manufacturers are stuck trying to identify what the issue is, how it can be repaired, and what it will cost. With predictive maintenance powered by industrial IoT solutions, all of those issues are alleviated.

When machinery performance and function are monitored consistently, you can create a baseline. This baseline and the corresponding data will empower you with the information you need to see any issue before it occurs. You can then schedule maintenance prior to downtime, which will benefit you in that you:

- Have the parts required for the job.
- Know the cost of the project beforehand, and can budget for it.
- Move production to another area of the facility, so the product quotas are unaffected.
- Ensure that machinery is operating at maximum efficiency.

## 3. Line Optimization :

The initial utilization of IIoT during Industry 4.0 was about individual machine optimization, today's Industry 4.0 is now more focused on optimizing the entire manufacturing process. IIoT solutions allow for the standardization of work output across an entire production line, making it easier to optimize operations across entire plants

## 4. Reduced Costs :

Knowledge is power, and the knowledge provided to Client via IIoT solutions is giving them the tools they need to reduce costs and generate more revenue. Data-driven insights into operations, production, marketing, sales, and more can steer businesses in a profitable direction