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Supply Chain Management using Internet of Things

1. Overview:

Supply chain management systems, simply defined, are a network of businesses linked together to provide materials and services to an end user. The goal of these systems is to coordinate functions and strategies, throughout a company, and across businesses, to improve the performance of all parties involved. Because supply chain management systems link several different branches of an organization, each of these systems is different, and requires fine tuning to work. SCM using IOT will improve the transportation, warehouse management and inventory management which will help for better warehouse management and data analytics with the use of the sensors.

SCM when talking in terms of logistics, is the oversight of materials, information, and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer. Supply chain management involves coordinating and integrating these flows both within and among companies.

2. Key Issues with the current SCM Management System in General:

- One of the major challenges is to precisely predict the demand of each item at every point of sale.
- Optimize the routes and shipments in the real time.
- How to eliminate the delays and shortcomings in the inbound supply.
- How to customize the orders in the middle of the production.
- How to maintain optimal inventory volume

Iot Improving the above mentioned issues:

Before internet of things, the firms had their own networks and applications for delivery of the data and analytics Thanks to internet of things, because of the cloud services companies are allowed to store, process and share data with other stakeholders or vendors in the real-time .For eg lets consider a transport industry. IoT provides immediate evidence to supply chain performance and allows companies to make knowledgeable decisions.

3. Problem statement:

Transportation:

- The level of visibility in the transportation.
- Tracking the freight conditions, the request status.
- Chang the delivery Address while the freight is on the way.

Warehouse Management:

- How to avoid the manual labor to reduce the error rate for counting the stocks in the warehouse
- How to Send an alert to the user if the product quantity reaches below threshold
- How to keep a track of warehouse conditions

Freight Management:

- How to receive a request for the change in the delivery address while the freight has been dispatched and reroute the freight
- How to load the freight based on the existing capacity
- How to check the availability of the freight

Data Analytics:

- How to find the product ordered from the supplier for last 10 years
- Analyze the freight health over the last 10 years and decide on the condition of the freight
- Analyze the current freight condition and alert if servicing is required

4. Problem solution:

Transportation (Freight management): The internet of things should provide the new level of visibility and connectivity. Sensors should be used to track freight conditions, the truck pressure and tracking provides better customer service and more convenience for the recipient, with the option of changing address of delivery.

Freight Management: ab IOT should resolve the issue of manually checking the condition of the freight.

The sensors should be continuously reading the data (Tire pressure, over all health and the emission of the gasses from the truck) to cause any serious damage to goods and the freight operators. Also,

Sensors should be able to track the current location of the freights (Where the trailers are) so that

help can be provided at the time of breakdown or any uncalled incident.

Warehousing: The IoT should be able to eliminate manual labor and time-consuming tasks for warehouse operations. For example, there should be a sensor to track the total available data in the warehouse. Alert should be given when the product count reaches below threshold. There should not be any need to count the the products manually.

Data-Analytics: smart devices provide end-to-end supply chain visibility. The ability to capture and interpret huge amounts of real-time information will make data analysis more essential. It creates unique insight into the supply chain and transportation processes, including drawbacks and opportunities

5. Roles:

1. System Admin
2. Admin

3. Supplier Manager Role
4. Inventory Manager Role
5. Warehouse Manager Role
6. Freight Operator
7. Warehouse Data Analyst
8. Transport Manager
9. Freight Analyst
10. Warehouse Operator

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