Chapter 25
Autonomous Robotic Technology and Conveyance for Supply Chain Management Using 5G Standards

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ABSTRACT

The process of incorporating robotic technology and autonomous vehicles are increasing in all applications where for all real-time application developments time and energy can be saved for every single movement transfer as compared to human classifications. Thus, considering the advantage of autonomous process without any presence of an individual, the supply chain management can be designed using robotic technology. The robotic technology provides an informal route where all goods can be transported to different places within a short span of time, and any false identification in transfer of goods can also be easily identified. To drive the autonomous vehicle towards correct location, a precise protocol is chosen, which is termed common industrial protocol (CIP) where proper solutions can be achieved for all control applications using time synchronization model. Further, the data monitoring process is trailed using an online contrivance which is termed as internet router (IR) where short distance can be identified using corresponding addressing scheme.

CHARACTERISTICS OF SUPPLY CHAIN MANAGEMENT

In topical eons there is a high demand in delivery of goods from one location to another where time consumed for delivery process is much higher. In some cases when the goods are transferred from different parts of the world it is much difficult to trace it in the presence of humans. Also there is a high probability that expected goods will be much different from delivered ones and sometimes the goods will not reach the receiver properly. To overcome the aforementioned drawbacks the process of supply chain management is introduced in all trade sectors. The introduction of supply chain management process manages the movement of goods from commercial to location subdivisions. In addition to delivery process the raw materials are chosen and they are manufactured from different locations and the methodical products are produced within the expected period of time. Thus the process of conception, distribution and return process is handled by supply chain management process to reduce the cost of implementation. Further supply chain management can be subdivided to five separate stages as follows,

- Stage 1: A simple plan for development of products
- Stage 2: Analysis of materials for expansion
- Stage 3: Production and adeptness form
- Stage 4: Approach of distribution
- Stage 5: Transportation of unwanted products

For all the aforementioned stage a step-by-step approach is needed and it varies for all distinct manufacturing industries. For this five stage process the possible problems are also identified at initial stage and a grievance contrivance has been created in case of any disenchantment to the consumer. Thus, in recent days a cloud monitoring process is created to achieve collaboration between different networks. While designing the five stage process more amount of data will be generated and it will be examined by data experts and in this case optimization process in required to minimize inactivity of all developed products. The major reason for such optimization process is to maximize the value of consumers and to accomplish a sustainable growth in delivery of products using physical and information system flows. The implementation of supply chain management process is shown in Figure 1.

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