MECHATRONICS BOOK SERIES

CONTROL AND INTELLIGENT SYSTEMS

Momoh Jimoh E. Salami
Abiodun Musa Aibinu
Yasir Mohd Mustafah

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EDITOR

Momoh Jimoh E. Salami

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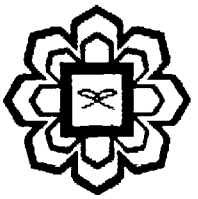

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5.1 Introduction

A conveyor system is a common piece of mechanical handling equipment that moves materials from one location to another. Conveyors are especially useful in applications involving the transportation of heavy or bulky materials. Conveyor systems allow quick and efficient transportation for a wide variety of materials, which make them very popular in the material handling and packaging industries.

Conveyors is the example of material handling devices that were used by most factory as their effective ways in reducing the cost and time constraints. Conveyors are used to move material between locations using an arranged fixed path. Conveyors are fixed in terms of their locations and the conveyor belts according to their synchronized speeds, making any change over of the conveyor system very difficult and expensive (Material handling News, 1993, Modern Material Handling, 1986, Ho, 1991).

Conveyors are seen as ineffective and just typically use to move transport material, but once equipped with proper control system they yield efficient and safe plant operation. So, electronic intelligent conveyor control technology is very constructive for complex conveying task. In order to full fill the intelligent element at maximum places the simple relay control system with old style mechanical sensing devices is used. This system will take the all the constraints of old system and also having additional feature like fee rate control (Makarand Joshi, 2003).

According to Makarand Joshi (2003), the efficiency of the material handling is depends upon availability and reliability of conveyor system. A single conveyor can run at close to 100% reliability but as the number of conveyor increases the consistency of the conveyor system is mostly depend upon its control system. The control system should be capable to fulfill all the need of material operation. The existing systems are designed to take care of only conveyor stoppage due to conveyor zero speed and sequential operation. The existing system has sensing devices like zero speed sensing and receiving conveyor position sensing. It has also facility for selection to operate conveyor avoiding control system.

Conveyors are a broad class of material handling equipment capable of transporting goods along fixed paths. Although conveyor are the least flexible material handling equipment, the provide manufacturers with a cost-effective and reliable alternative. In order to meet the best specification in the material handling devices the manufacturer should used the best resolution that meet and cope with the product produced. Conveying equipment is generally classified as above-floor conveyors versus on-floor or over-head tow-line conveyors. Both classes allow horizontal and inclined conveying, while tow-line type conveyors also allow vertical conveying (Chryssolouris, 1993).

To produce the best production will need the most excellent material handling devices in order to response with the demanding product. Most assembly is set up according to the product flow layout using conventional conveyor systems. Above-floor conveyors have been classified as package handling conveyors due to their primary application of transporting cartons, pallets and totes. On the factory floor they are utilized in transport (palletized/fixture) work pieces likes engine blocks, gearboxes, household items and many more. It can carry materials from one assembly station to another in other to decrease man power used. In a