

FABRICATION OF CONVEYOR BELT WITH AUTOMATIC PICK AND PLACE AND DIGITAL COUNTER

INTRODUCTION:

A belt conveyor system consists of an endless belt of resilient material connected between two flat pulleys. Normally belt conveyors are used in many applications for transport of materials from one place to other. In this project our objective is to develop a prototype of belt conveyor using stepper motors, which are mechanically connected to each other. On the other end we will have an automatic pick and place mechanism. This pick and place is automated using a controller which is motor driven. This pick and place module will move to a particular place, pick's the components and place it on the conveyor belt. At the end of the belt we will have a IR sensor, once the materials placed on the belt breaks the IR barrel a digital counter will start counting. With reference to the above description we are developing a conveyor belt with automatic pick and place and digital counter.

WORKING PRINCIPLE:

Belt conveyors are generally fairly similar in construction consisting of a metal frame with rollers at either end of a flat metal bed. The belt is looped around each of the rollers and when one of the rollers is powered (by an electrical motor) the belting slides across the solid metal frame bed, moving the product. In heavy use applications the beds which the belting is pulled over are replaced with rollers. The rollers allow weight to be conveyed as they reduce the amount of friction generated from the heavier loading on the belting. Belt conveyors can now be manufactured with curved sections which use tapered rollers and curved belting to convey products around a corner.

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EXISTING SYSTEM:

In the existing Belt Conveyor system there is no option for keeping the luggage or materials automatically on the belt and the proposed system having it.

PROPOSED SYSTEM:

In this proposed system, we are adding pick and place options for the luggage's or materials and a digital counter to count the numbers. In turn which will reduce the human effort?

APPLICATIONS:

1. Mining industry
2. Cement industry
3. Coal and ash handling
4. Cold storage industry
5. Packing industry
6. Luggage handling in airports
7. Automation industry.

ADVANTAGES:

Belt conveyors have many advantages over other types of bulk material handling equipment. Some of the advantages are:

- Belt conveyors are capable of handling a wide range of bulk materials from very fine to large lump sizes.
- Belt conveyors can be designed to handle capacities for any operation
- Belt conveyors can be configured to fit almost any application. A belt conveyor can convey material horizontally, on an incline or a combination of both
- Belt conveyors can be used to stock-pile or reclaim bulk materials.
- Belt conveyors require less horsepower to operate than other types of conveyors. Bulk materials are carried on top of the belt and remain static, therefore requiring much less energy to move.
- Belt conveyors have proven to be a reliable method of conveying bulk materials.