

## **DESIGN, DEVELOPMENT AND ANALYSIS OF ROLLER BELT CONVEYOR SYSTEM: A REVIEW**

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### **ABSTRACT**

*The roller belt conveyor system is the process used in different industries to carry heavy loads from one place to another place with ease. Now-a-days, most of the companies are using heavy conveyor systems which tend to consume more power. Heavy assembly system also causes problems due to maintenance of critical components and results in increased man power and time consumption, which is not helping industries in attaining profitable growth. Material processing is an integral part of the industry and contributes a significant proportion of the total power supply. Material processing includes different types such as lifts, conveyors, etc. out of which conveyors are most useful and less time-consuming systems for the continuous movement of materials in industries. Belt conveyor is widely used for the continuous transportation of different equipments with better efficiency and strength. It is important to reduce the energy and energy costs of material handling. Therefore, this process is based on improving the efficiency of energy of belt conveyors, because these are the main reasons of this system that consume energy. This detailed study focuses on the optimization of critical parts like belt, rollers, roller shafts, frame, c- channels, brackets and by using different materials such as belt, roller and analyze it to minimize the assembly's weight without changing its structural strength with the help of proper finite element model using software like CATIA. This paper also provides brief information on redesigning of critical parts of roller belt conveyors used in the industries for reducing the weight and power consumption. This paper also provides information about Roller belt conveyor system and different materials used in the system.*

**KEYWORDS:** Ansys, CATIA, Material Handling, Weight Reduction

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