

## **ABSTRACT**

PT. XYZ is one of the companies engaged in tire retreading with a production capacity of 80 tons per month. The use of motorized vehicles each year has experienced growth in rhythm with the increase in the volume of used tires for motor vehicles. Motor vehicle growth events. This event is an opportunity for PT. XYZ in developing its business in tire retreading. The production process at PT. XYZ uses a crusher machine to chop raw materials from used motor vehicle tires and EPDM rubber waste. The transfer of raw materials is still done manually and repeatedly by two operators which has an impact on the productivity level of the company and the physical workload of the two operators.

The designer used a Nordic body map questionnaire to map the pain experienced by both operators and fishbone analysis to find the root cause of the two crusher machine operators so that the crusher machine operator felt very pain in the buttock/hip area. The crusher machine processes raw materials in the form of EPDM rubber and used tires of 3-4 tons per day. The crusher machine has a height of 2.6 m so that the operator needs to carry out the raw material transfer process continuously and perform repetitive movements in the form of taking, lifting, checking and cutting with the process of moving raw materials manually.

The designer found the problem that became the basis for the designer to do the design at PT. XYZ with the aim of providing material handling equipment that can move raw materials for crusher machines. The use of material handling equipment in accordance with this problem is a conveyor. The conveyor design stage uses Nigel Cross rational product design. The final result of the research is the concept of a conveyor with a raw material cutting site.

**Keywords:** Conveyor, Rational Product Design, Nigel Cross, EPDM Rubber Waste, Used Vehicle Tires. Nordic Body Map, Fishbone