

FABRICATION OF PALLETING MACHINE

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Keywords:

Plastic Recycling, Plastic Extrusion, Plastic Extruder, Extrusion Screw Plastic pellets, Extruded Products, Non-Bio Waste Treatment / Recycling

Introduction:

The enormous expansion in industrial and urban activities over the last few decades, resulting in the need for people to adopt better lifestyles, has resulted in an increase in the usage of packaging materials, primarily in the form of plastic. Plastics have become an important component of today's life. Without preserving fossil energy like oil, the current rate of economic expansion is unsustainable. Biomass, hydropower, and wind energy are all viable alternatives to fossil fuels. Another vital requirement is a proper waste management strategy. Development and modernization have resulted in a massive growth in the production of a wide range of goods, many of which generate trash indirectly. Because of their light weight, durability, and energy efficiency, plastics have been one of the materials: used. These polymers are used in a variety of industrial and residential applications. Plastics are made from petroleum compounds and are mostly made up of hydrocarbons, with antioxidants, colorants, and other stabilizers thrown in for good measure. In 2019, 368 million tones of plastic were manufactured, an increase of 4% over the previous year, However, recovery and recycling are insufficient, and millions of tones of plastic wind up in landfills and oceans every year. Each year, 10-20 million tones of plastic end up in the oceans. According to a recent study, 8 million tones of plastic particles are currently floating in the world's oceans every year. Consequently, the concern over the plastic waste generated has also been rising steadily over the years. As one manifestation of the concept of waste hierarchy, the campaign of reduce, reuse, and recycle (3Rs) has been widely promoted, especially to the community from as early as 1970s. The 3Rs is expected to bring communal effort to reduce the amount of waste from its source.

To reduce the plastic waste and to recycle it for further future use has been a very important task to deal with, collecting of waste plastic from surroundings like bottles, plastic covers etc and to recycle it completely by converting it to pallets by the extrusion process and which tends to decrease in plastic waste and to recycle it. Furthermore on plastic extrusion process,

it is a manufacturing process in which raw plastic is melted and formed into a continuous profile producing items such as pipe/tubing, fencing, deck, railings, window frames, plastic films, and wire insulation. The general process starts by feeding plastic materials, like granules, flakes, or powders from a hopper into the barrel of the extruder. The material is gradually melted by mechanical energy generated by turning screws, and by heaters arranged along the barrel. The molten polymers are then forced into a shape that hardens during cooling. Plastic extrusion process is one of the methods to recycle the plastic products and reduce the plastic waste in some extent

Objectives:

- To develop a cost-effective palleting machine this can enable recycling of domestic plastic waste.
- To enable scientific method of plastic waste management this prevents soil, water and air pollution.
- To test if it can be used on daily basis for long term use

Methodology:

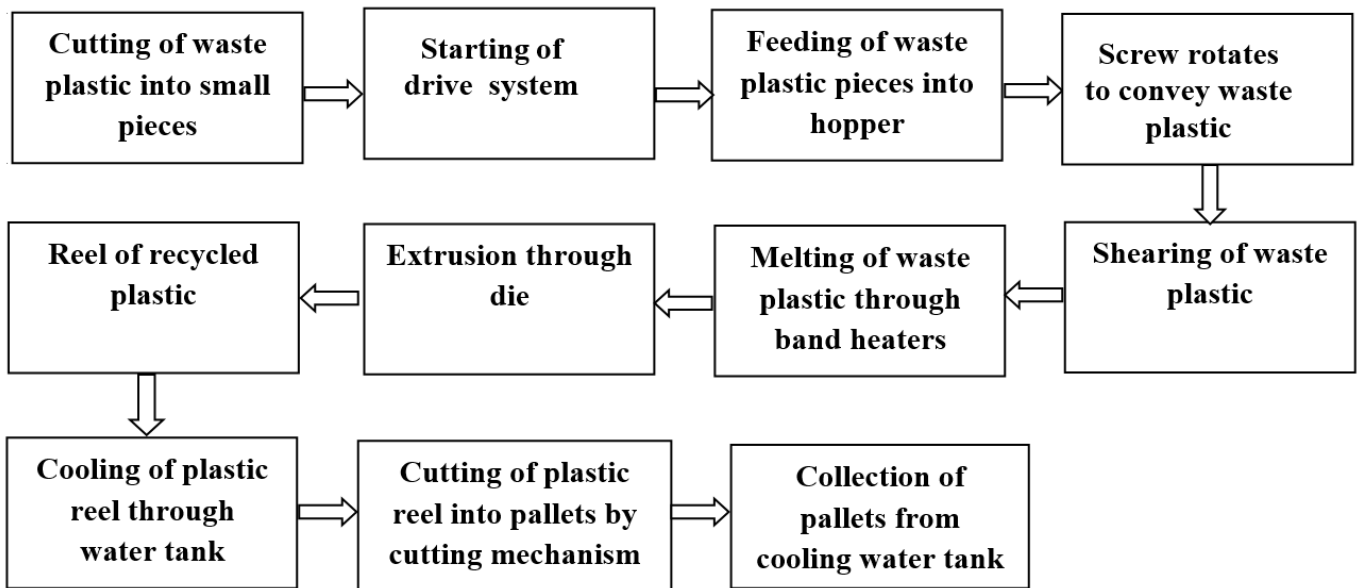


Figure 1. Flow chart representing working of palleting

DESIGNED MODEL:

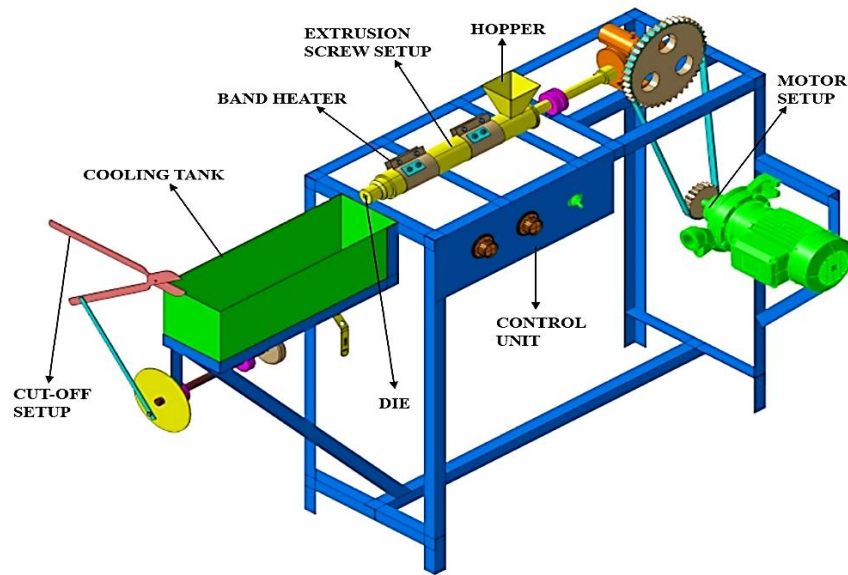


Figure 2. Designed model of the palleting