Abstract:

Due to the difficulties faced in keeping the beach clean manually, we have come up with an equipment which not only collects the waste (sticks, non degradable waste) but also separates, which is easy for waste disposal.

The machine mainly consists of an engine which runs through a fossil fuel which drives the entire process. The waste is collected through conveyor blade along with the sand which falls of through the perforations on the conveyer back to the sand bed; separation of waste material takes place through principle of Density difference. It consists of two hoppers where the different waste gets collected which facilitates easy disposal of waste.

Introduction

As we are living in a coastal area beaches are main attraction for tourism, so in attracting tourist the beach must be kept clean. For the purpose of cleaning the beach, some cleaning machine must be used so we have manufactured a cleaning machine which is helpful in cleaning the beaches.

The 110cc engine is responsible for driving mechanism of conveyer and wheels. The strainer attached to the conveyer will collect the wastages from the surroundings and transferred to storage bucket through conveying belt.
Methodology:

- The Beach cleaning machine is a mechanized way of driving the vehicle by accelerating the throttle.
- A 12Volt battery energizes the ignition coil.
- The energized coil directs the amplified current towards the engine motor and the spark plug.
- The motor cranks the engine and spark plug ignites the fuel and the engine gets started up.
- The engine speed is controlled by operating the Continuous variable transmission (CVT) in turn by varying the engine throttle.
- A CVT is a transmission system which varies the engine speed as required by the operator. It is coupled to the engine output shaft.
- The engine drive is used to run the rear axle by the means of a chain-sprocket arrangement which in turn drive the wheels.
- The engine is also coupled to a gear drive, which in turn is coupled to a belt pulley drive.
- The belt drive is used to run the roller which carries the conveyor.
- The conveyor is provided with meshed bucket which rolls around and picks up the waste by digging the sand and filters the sand by raking principle while the machine is driven forward motion.
- The speed of conveyor is a function of the speed of the engine.
- The waste material collected by the meshed bucket is dropped into the hopper placed next to the engine.
- The hopper has mesh of suitable size which facilitates easy separation of materials depending on sizes of materials.
Fig.1: line diagram of beach cleaning machine

1. Engine
2. Conveyor with strainer
3. Waste container

Advantages

- Reduces human efforts
- It covers more area in less time
- It keeps the surrounding clean