PLASTIC WASTE SORTING SYSTEM FOR FIVE TYPES OF PLASTICS

INTRODUCTION

Untreated plastic waste is causing enormous damage to the environment, ecology and public health. Thus, recycling of used plastics is gaining importance and has become a great technological and societal subject. In many countries, most of the plastic waste is being manually graded and recycled into very low value raw material. The manual process is unhygienic and prone to subjective and manual errors. Realizing the importance of the problem, a Near Infrared (NIR) spectroscopy based plastic waste sorting system has been developed. This Technology is based on Near Infrared Spectroscopy and Chemo metric techniques, sort's singulated plastics moving on a conveyor. Embedded hardware with wireless interface for remote, safe handling and monitoring.

APPLICATIONS

- The system is useful for segregating waste plastics into different value-added polymer fractions for efficient recycling.
- It sorts plastic waste materials moving on a Conveyor into five types of plastics viz., Poly- Ethylene Teraphthalate (PET), Poly- Propylene (PP), Poly-Vinyl Chloride (PVC), Poly-Styrene (PS) and Poly-Ethylene (PE).
- Aids in easy management of solid plastic waste for recycling.

SALIENT FEATURES

- Real-time, non-destructive and fast sorting of waste plastics.
- Accurate classification of plastics (near 100% for PET
- Capable of sorting about 100 plastic items per minute or approximately 4 tons of plastics per day.
- Automated, low cost system using open source hardware and software Embedded motion control using microcontroller.
- User-friendly Graphical User Interface.
- Implemented on low cost embedded hardware and open source software.

SCALE OF DEVELOPMENT: Technology commercialised.

