

AUTOMATED WASTE SORTING SYSTEM BASED ON VISUAL SPECTROMETRY

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Introduction. Today, there is an increasingly urgent need to protect the environment, in particular, against the backdrop of countering the growing scarcity of natural resources and climate change, as well as ensuring an ever-growing number of people on Earth. A good environment for health is: sufficient drinking water, fertile soil and clean air. This leads to stricter requirements for efficient and sustainable waste management.

Main part. Modern technology saves people from dirty and monotonous work. Automatic sorting based on visual spectrometry system. Automatic sorting is based on the use of a visual spectrometry system. It provides the extraction of various materials from a mixed or uniform waste stream and takes into account the physical and chemical characteristics of the material.

The automatic sorting unit is an optical scanner mounted above a conveyor belt. Infrared sensors receive and analyze reflected spectra. Statistical determination calculates by the size, shape, structure and color of the material. Then a manipulator sends a signal to the hand, and the material programmed in the scanner is transferred to the corresponding hopper. The sorting process also includes air separators, separators for separating metals containing iron and non-iron components, star screens for separating small parts, belt conveyors, shredders and presses. Using automatic sorting technology allows you to extract up to 98 % of a certain type of secondary raw materials.

Conclusion. Summarizing the foregoing, it is obvious that the processes of collecting, sorting and processing waste can be almost completely automated, and based on existing technologies. Moreover, automatic waste disposal can bring considerable profit.

References

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