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SPIRE-07-2015

ADIR

Full Title: Next generation urban mining - Automated disassembly, separation and recovery of valuable materials from electronic equipment

Aim:

The goal of ADIR is to demonstrate the feasibility of a key technology for next generation urban mining. An automated disassembly of electronic equipment will be worked out to separate and recover valuable materials. The concept is based on image processing, robotic handling, pulsed power technology, 3D laser measurement, real-time laser material identification (to detect materials), laser processing (to access components, to selectively unsolder these; to cut off parts of a printed circuit board), and automatic separation into different sorting fractions. A machine concept will be worked out being capable to selectively disassemble printed circuit boards and mobile phones with short cycle times to gain sorting fractions containing high amounts of valuable materials. Examples are those materials with high economic importance and significant supply risk such as tantalum, rare earth elements, germanium, cobalt, palladium, gallium and tungsten..

Concept:
A demonstrator will be developed and evaluated in field tests at a recycling company. The obtained sorting fractions will be studied with respect to their further processing and recovery potential for raw materials. Refining companies will define requirements and test the processing of sorting fractions with specific material enrichments.

Start date:
01/09/2015

End date:
31/08/2019