# A cool system to make E-waste great again.

**Anita Baier**
Ludwigs-Maximilians-Unitversität
Munich, Germany
author7@umbhaliu.ac.za

**Jonas Mattes**
Ludwigs-Maximilians-Unitversität
Munich, Germany
j.mattes@campus.lmu.de

**An ??**
Ludwigs-Maximilians-Unitversität
Munich, Germany
author7@umbhaliu.ac.za

**Guoliang Xue**
Ludwigs-Maximilians-Unitversität
Munich, Germany
author7@umbhaliu.ac.za

**Zhe Li**
Ludwigs-Maximilians-Unitversität
Munich, Germany
author7@umbhaliu.ac.za

**Bruno Müller**
Ludwigs-Maximilians-Unitversität
Munich, Germany
author7@umbhaliu.ac.za

**Changkum Ou**
Ludwigs-Maximilians-Unitversität
Munich, Germany
hi@changkun.us

**ABSTRACT**

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In todays society electronics become a more and more crucial part of our lives. The demand for electronic devices increases and so does the amount of waste we produce with them. E-waste is a term used for old electronic devices that are of no use anymore and thus become scrap. This causes

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serious pollution to our surroundings and other countries since most of the e-waste is being exported to third world countries.
Our goal is to find a solution to this pollution problem. Our plan is to create a trading system similar to the CO2 trading system of the European Union. Countries are allowed to only export a certain amount of e-waste. This amount can be increased if they either buy allowances from other countries or if they invest in recycling of e-waste. The global e-waste export limits will be lowered year by year, thus lowering global pollution created by no longer used electronics.

## CCS CONCEPTS

•**Computer systems organization** → **Embedded systems;** *Redundancy;* Robotics; •**Networks** → Network reliability;

## KEYWORDS

E-waste; trading system; pollution.

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## RELATED WORK

We don't work on the main file. Everybody includes his own .tex file :) Robinson [**?** ] pointed out that most of the E-waste isn't even getting collected and just thrown into the household waste. 80% of the E-waste which got collected is then getting exported in poor countries. The recycling in these countries

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is problematic because E-waste contains lots of environmental contaminants and the facilities doesn't take proper care of this. This is why these contaminants are found around these premises. E-waste has already caused a "'considerable environmental degradation"'[**?** ] in these countries. Also the workers are suffering from health problems because barely protected against the dangerous fluids and gasses. According to the current european WEEE-directive, manufacturers, sellers and distributors need to provide a return point for electronical and electrical devices. The aim is amongst others the reinforcement of recycling upon responsibility of the producer, which are also in charge of bearing the costs, while the end consumer has the responsibility of proper waste separation [**?** ]. Specifically for smartphones, the German Goverment rejects a deposit at the expense of the final consumer on the national implementation [**?** ]. There are also existing several non-profit projects, which accept mobile phones in order to reuse and recycle them [**?** ][**?** ].

> "*Cumulatively, about 500 million PCs reached the end of their service lives between 1994 and 2003. 500 million PCs contain approximately 2,872,000 t of plastics, 718,000 t of lead, 1363 t of cadmium and 287 t of mercury*" [**?** ]

According to [**?** ] this already huge amount of e-waste is going to increase even further as electronics keep advancing and the need for new electronics keeps increasing. Exporting e-waste to poor countries would make sense for first world countries according to Larry Summers (back in 1991) since third world countries don't have an industry that already pollutes their air, water and ground so heavily, so they can deal with that problem more easily. Plus since mortality rates are already so high in these areas, the added pollution would not affect these countries that much.
This thinking started to change with the Basel Convention in 1989. It limits how much e-waste can be moved to what parts of the world, trying to save the environment and also trying to push the companies towards recycling.

Large household appliances and IT and telecommunications equipment made up three quarters of all e-waste back in 2002. This e-waste was mainly generated by countries of the OECD. Overall numbers are going to keep on increasing.

Although it is hard to track down how and where e-waste is going, there have to be put some restrictions into action on where e-waste is going. To solve the problem of this steadily increasing waste, recycling should become more important and more commonly used. But even for this solution, there are environmental hazards that come along with recycling.
To prevent e-waste from even becoming a problem, products should also be designed in such a way that they thrown away in a relatively short time span. From the regulation aspect, Plambeck