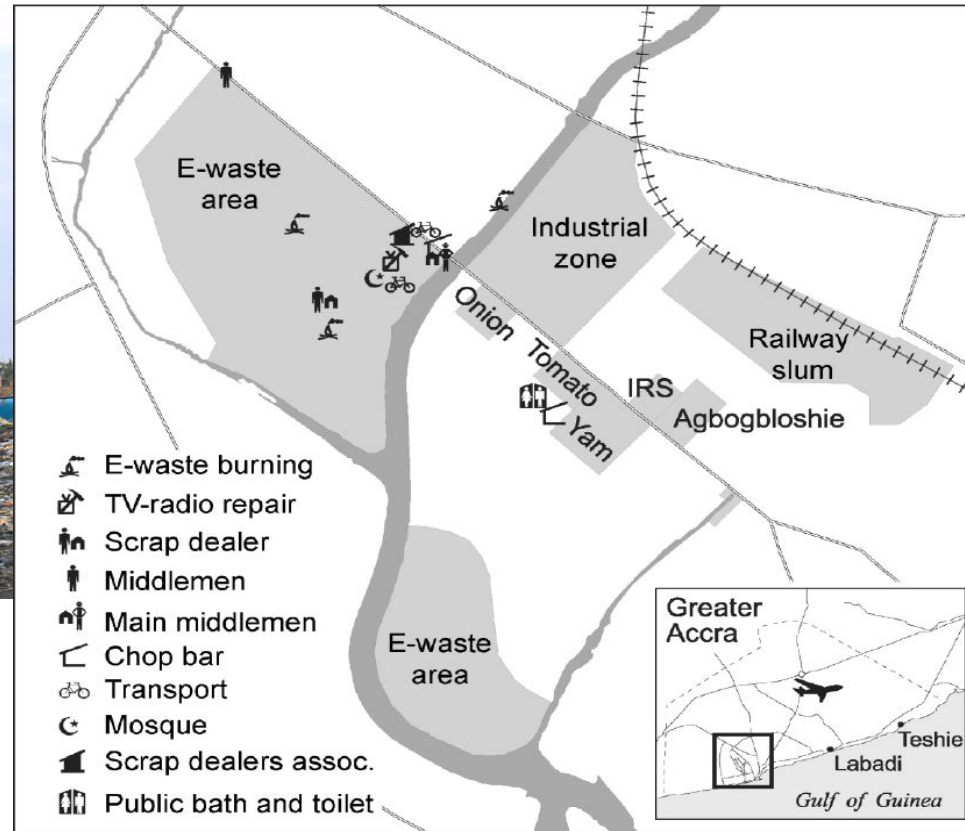


Agbogbloshie: E-waste Dump?



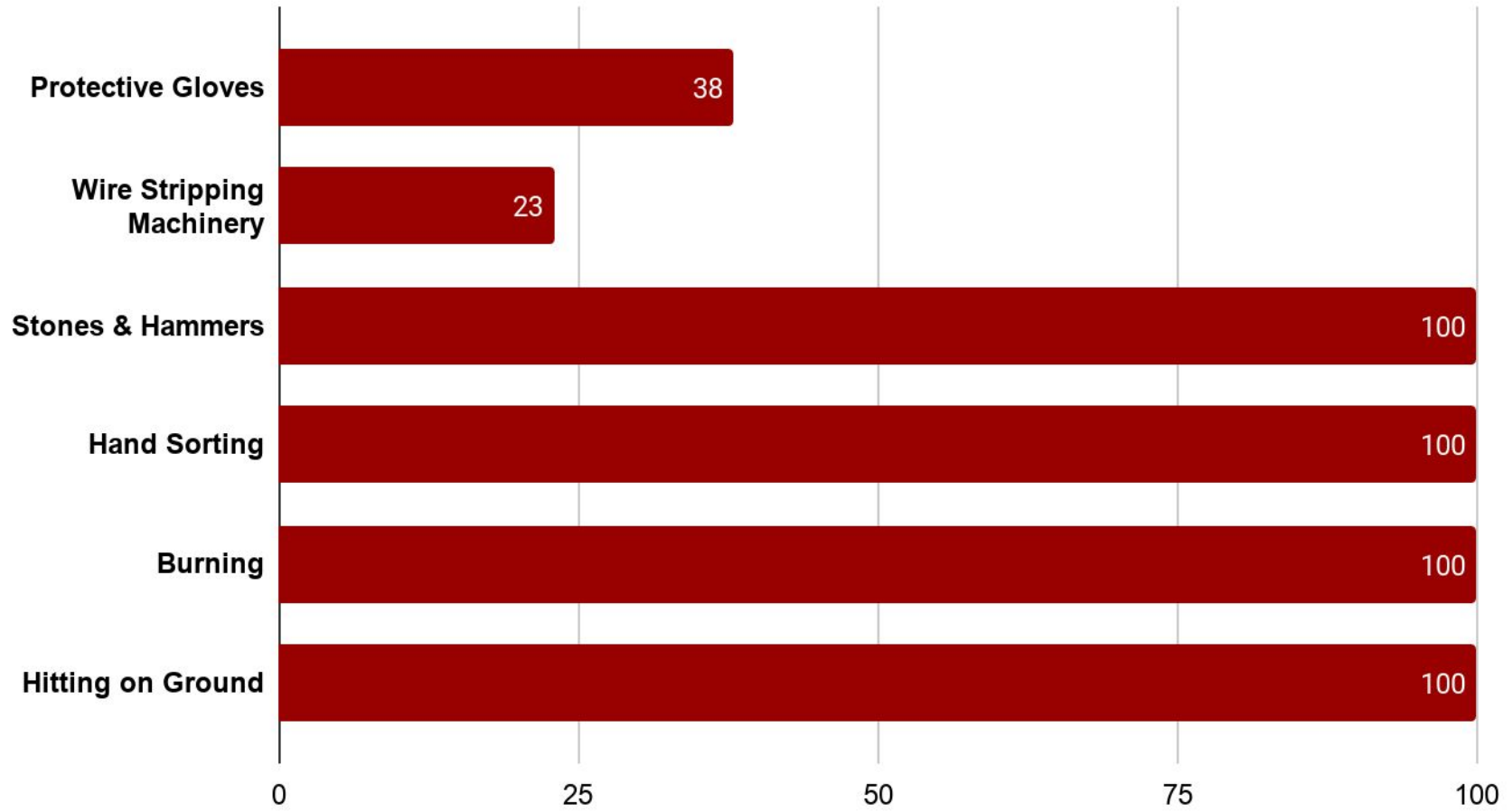
"If there could be an innovative way to do this dismantling work, it would be good for me"

-Mohammad Awal

The changing contours of Agbogbloshie¹

¹Oteng-Ababio, Martin & Grant, Richard. (2018). Ideological traces in Ghana's urban plans: How do traces get worked out in the Agbogbloshie, Accra?. Habitat International. 83. 10.1016/j.habitatint.2018.10.007.

E-waste Processing Technologies

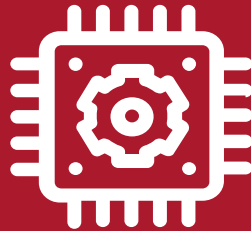


Adanu, S., Gbedemah, S., & Attah, M. (2020). Challenges of adopting sustainable technologies in e-waste management at Agbogbloshie, Ghana. *Heliyon*, 6(8), e04548–e04548.

Overarching Project Goals



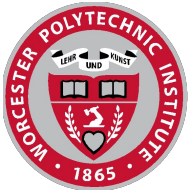
Community
engagement



Address the
issue of e-waste
accumulation



Stimulate the
local economy



WPI

Stimulating Innovation at Agbogbloshie E-waste Site through Cross-Cultural Co-Design

Sawyer Fenlon
Seamus Flanagan
Emily Sansoucy
Adrianna Staszewska

Advisors: Berk Calli, Robert Krueger



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Historical Influence

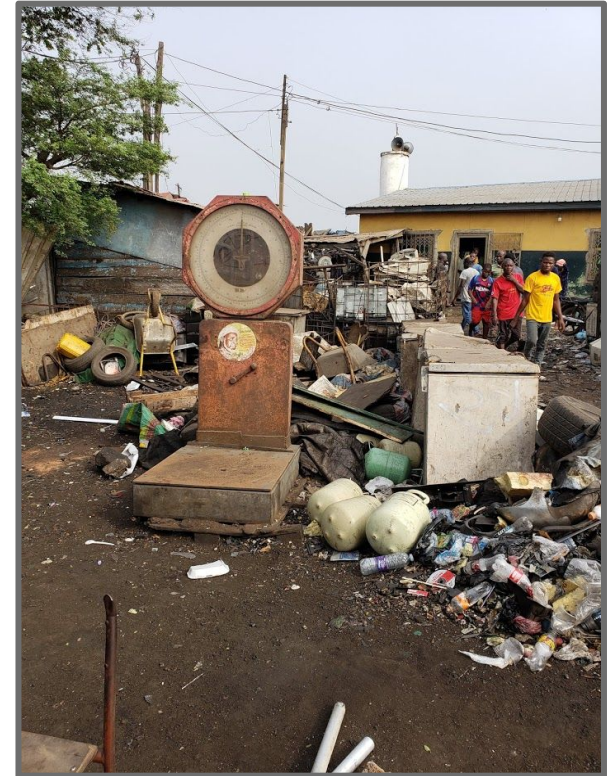
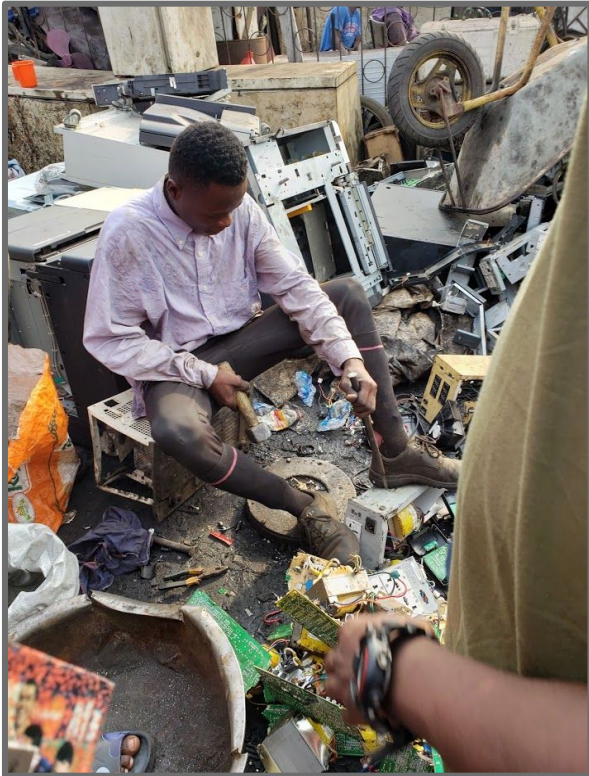


¹Irani, Vertesi. "Postcolonial Computing: a Lens on Design and Development." *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, ACM, 2010, pp. 1311–20, doi:10.1145/1753326.1753522.

Co-Design



Co-Designing at Agbogboshie



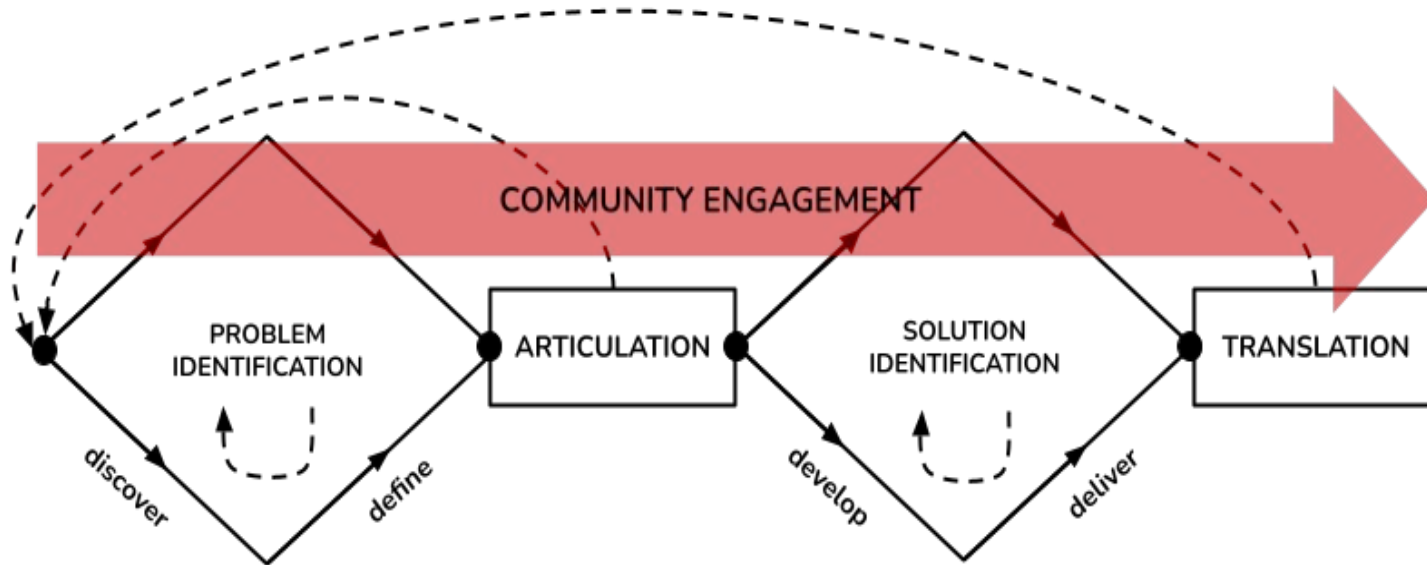
Photographs taken by ACUC students during their trip to Agbogboshie.

Agbogbloshie Collaboration

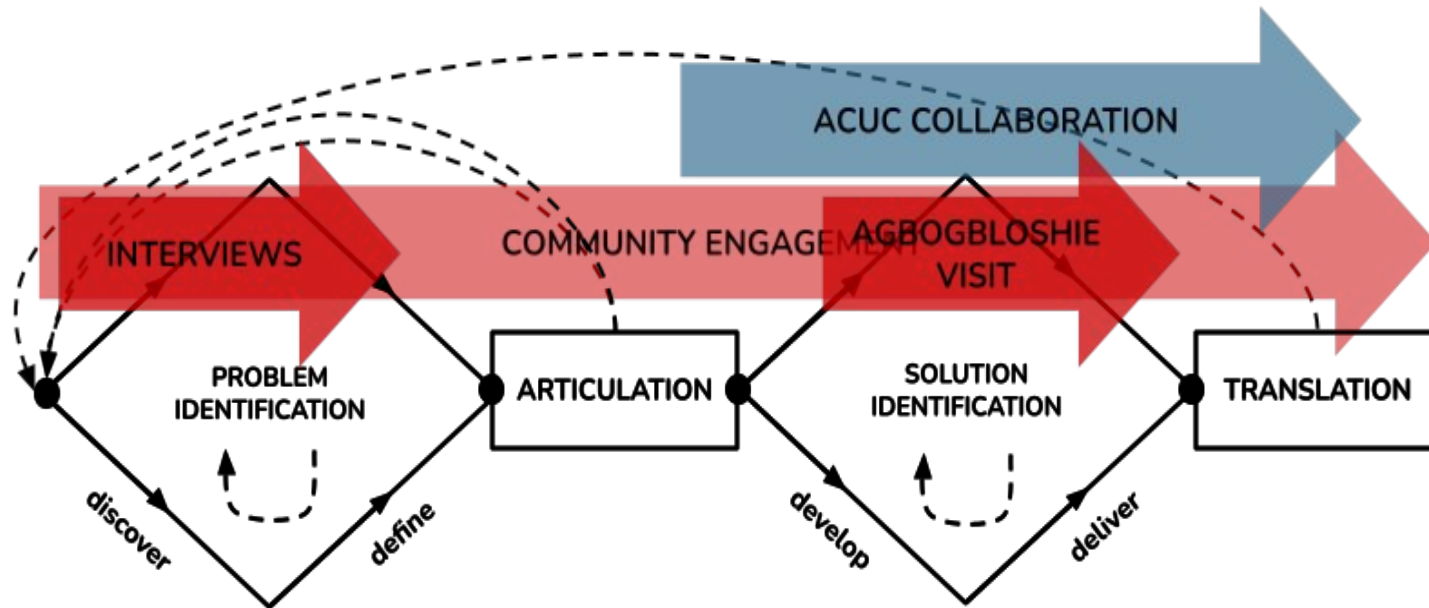
**ACUC Agbogbloshie Visit
3/10/2021**



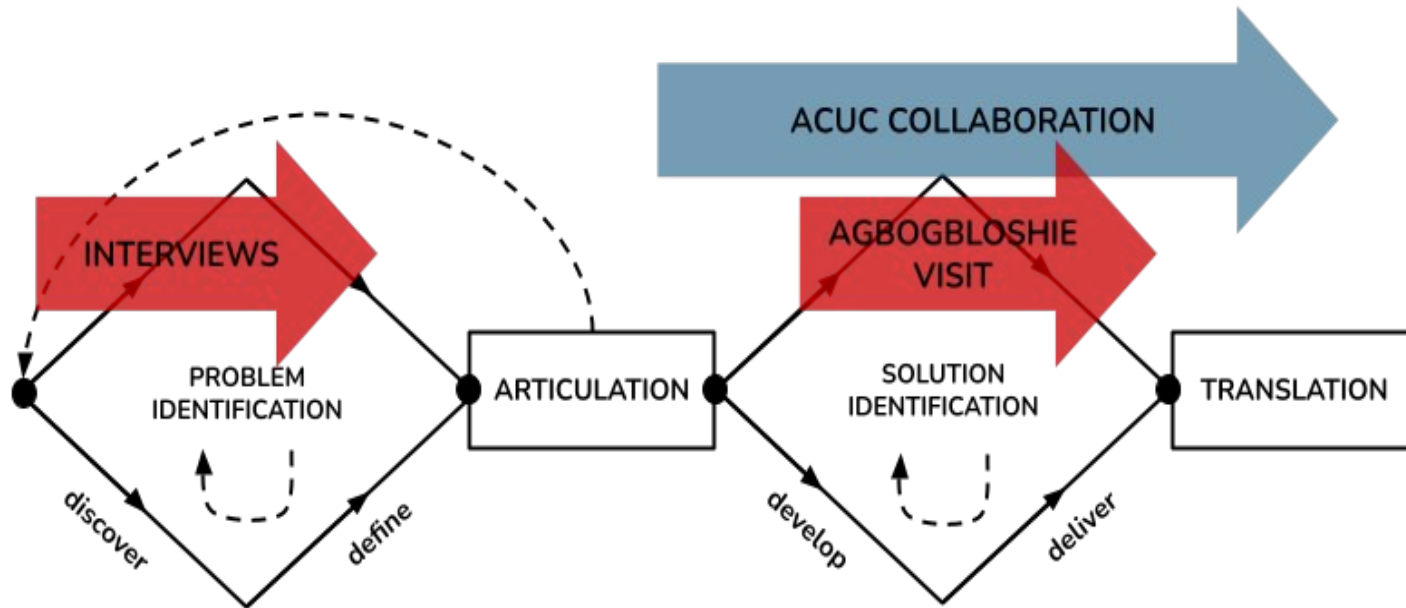
Design Process



Design Process



Real Design Process



Outcomes

Agbogbloshie Competition Handbook



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TEAM 1

Incubators made out of old fridges

TEAM 2

Finding access to markets for aluminum smelters

TEAM 3

Dismantling workspace focused on alleviating back pain

TEAM 4

Pulley system for moving melted aluminum

Poster Presentations

AGBOGBLOSHIE MECHATRONICS PROJECT

Team 4



ABSTRACT

This presentation focuses on the manufacturing of aluminum cooking pots at a factory in Agbogbloshie focusing on the transportation of the molten aluminum from the furnace to the pot mold.

INTRODUCTION

Where we went to:

We went to the agbogbloshie e-waste dump site. we spoke with Mr. Suale a computer repairer who has been working there for 8 years. He took us around to meet other workers in the site.



Over the course of speaking with Mr. Suale, we got to know that they receive the e-waste from the big companies in Ghana and also their agents who go out to get electronics appliances which are not of use to their owners. They then dismantle the appliances to obtain the raw materials such as aluminum, copper and zinc. After this they sell it to the big factories at a price of 2 cedis per kilo.

PROBLEM STATEMENT

In a smelting factory problem of carrying hot molten aluminum from the furnace across the room to the pot mold is physically tiring and can also call health hazards. This reduces the efficiency of the hole process over time since the workers get exhausted easily.

SOLUTION

We came up the idea of creating a pulley system which would lift the molten aluminum up in a vertical manner and then transport it horizontally to the mold.

Mechanism:

Applying knowledge from mechanics of machines the whole transport system as based on pulleys.

How it Works:

There would be a timer that would countdown till the aluminum has melted. Once this has been completed the vertical pulleys would lift it upward and then the horizontal pulley would transport it across the room over to the mold. Once this is done the pulley would be reversed back to the starting position and the timer would be started again.

What would it replace:

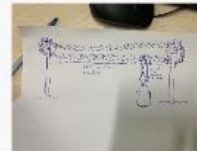
This technology would replace the energy of the workers. Which makes their working process slow and less efficient.

Advantages:

- It will prevent injuries
- It makes the process faster and efficient
- It makes the hole process less tiring

Disadvantages:

- It costs some money to build



Materials Needed

- Bicycle pulley (From a bicycle)
- 3 DC Motors (From a kitchen blender)
- Bicycle chain (From a bicycle)
- Wood
- Nails

CONCLUSIONS AND RECOMMENDATIONS

Once our solution has been executed, it will have positive effects on the health of the workers and also increase their efficiency. Improvements could be made on the device to minimize its disadvantages.

TEAM INFO

TEAM MEMBERS

- Farouk Adam Tettey - Larbie
- Papayaw Boakye - Akyeampong
- Listowel Anim Appiah Kubi
- Seamus Flanagan

ACKNOWLEDGEMENT

We would like to acknowledge the effort of:

- Mr. Suale: A computer repairer at the agbogbloshie site. Who took us around the whole e-waste site introducing us to the people we are working with.
- Members of this group for their immense effort working on the project
- Our Project Advisors: Mr. Julian Bennett, Mr. John Yirijor, Mr Michael Mensah.

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 2. Worcester Polytechnic Institute (WPI):
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 3. Agbogbloshie – The World's Largest E-Waste Dump in pictures:
<https://www.theguardian.com/environment/gallery/2014/feb/27/agbogbloshie-worlds-largest-e-waste-dump-in-pictures>
- Competition Handbook:
https://cdn.discordapp.com/attachments/812305392989503492/814993320983658497/Competition_Handbook.pdf

Looking Forward



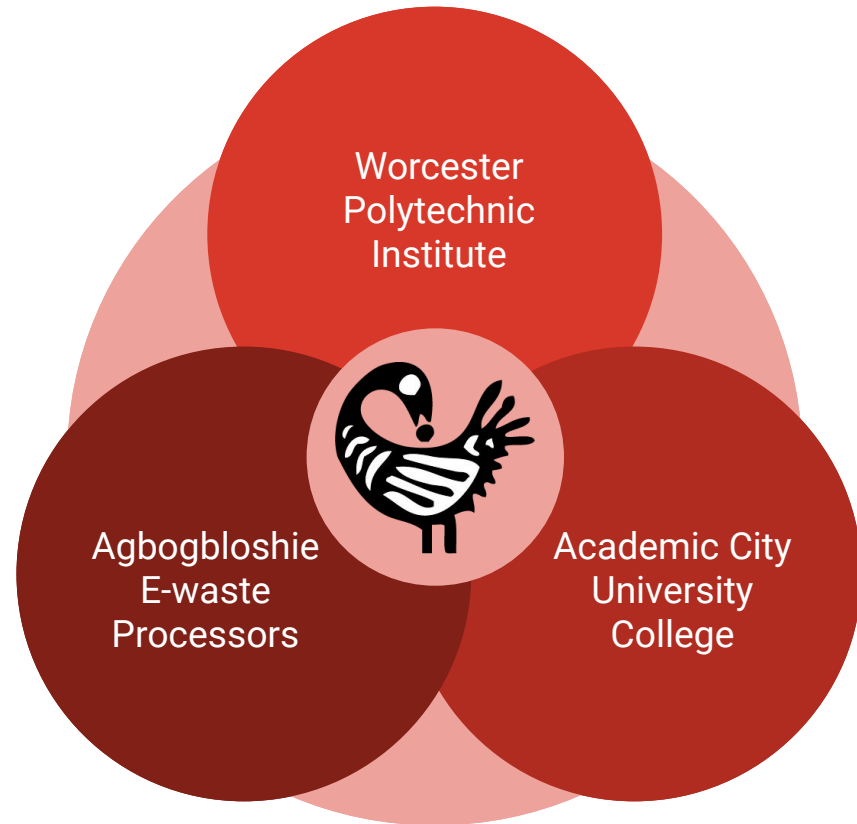
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Development
Design Lab



“Agbogbloshie reminds us that making is a cycle. It extends to remaking and unmaking, recovering the materials we need to make something anew. Let’s not call Agbogbloshie a dump. A dump is a place where you throw things away and leave them forever. A scrapyards is where you take things apart to remake something new.”

DK Osseo-Asare



Thank you!

Any Questions?

Special thanks to ACUC Professor
Julian Bennett!

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