Inter IIT Tech Meet 8.0
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INDIAN INSTITUTE OF TECHNOLOGY MADRAS
सिद्धिर्भवति कर्मजा
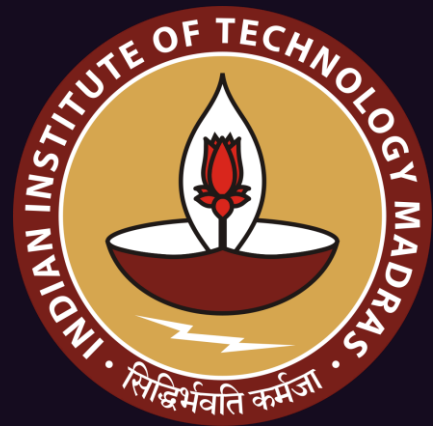
Ashoka's Tech for Change Challenge

The Vision

We aim to reinvent dry waste management and recycling in the average Indian household by making an app to connect scrap producers to scrap collectors.

ScrApp

The e-waste dilemma

As other forms of dry waste have been extensively explored, we primarily try to solve the problem of e-waste management.

When e-waste ends up in landfills, toxics like lead, mercury, and cadmium leach into the soil and water. The electronic waste problem is huge: more than 48 million tons of e-waste is produced every year.

Nearly 79% of the e-waste generated is trashed	Only 21% is recycled

According to IFC, the e-waste sector will create 4.5 lakh direct jobs by 2025.

Assessing reality

On speaking to different Raddhiwalas, we realized that they are

- Unorganized
- Exploited
- Lack market knowledge
- Unaware of the potential of waste

But are also

- Eager to change their lifestyle
- Ready to adopt new apps and services
- Keen on increasing their visibility

Assessing reality

The average Raddhiwala:

- Collects an average of 10 kg of paper in a single day: buys it at ₹8 per kg and sells it at ₹10 per kg.
- Collects an average of 10 kg of plastic in a single day: buys it at ₹13 per kg and sells it at ₹15 per kg.
- Makes an average of ₹50 a day collecting e-waste.
- Collects milk packets, glass bottles and cardboards at minimal rates (around ₹4/kg)

Along with all other expenses, a Raddhiwala makes around ₹10,000 - ₹15,000 a month, whereas his helpers make about ₹200 a day.

Assessing reality

We also spoke to different waste aggregators like,

And they all mentioned how it is uneconomic for them to collect e-waste from consumers. But they have no problems collecting waste from Raddhiwalas, and that does not require optimisation, or at any subsequent step.

Assessing reality

Scrap collectors
+ Large in number
- Informal
- Lack of solid incentive
- Small scale

Transportation
is expensive!

Consumers
+ Abundance of e-waste
- Inconvenient to get rid off
- Ignorant waste practices

E-waste aggregators
+ Have licence to legally recycle
+ Large scale
- Sparsely located

Where we step in

With our app, ScrApp, we aim to connect the consumers to the scrap collectors and make e-waste collection profitable for both parties.

Consumer

Where we come in

Scrap collectors

Waste aggregators

Tier 1, 2 and 3 recyclers

OEMs

EPR

Government
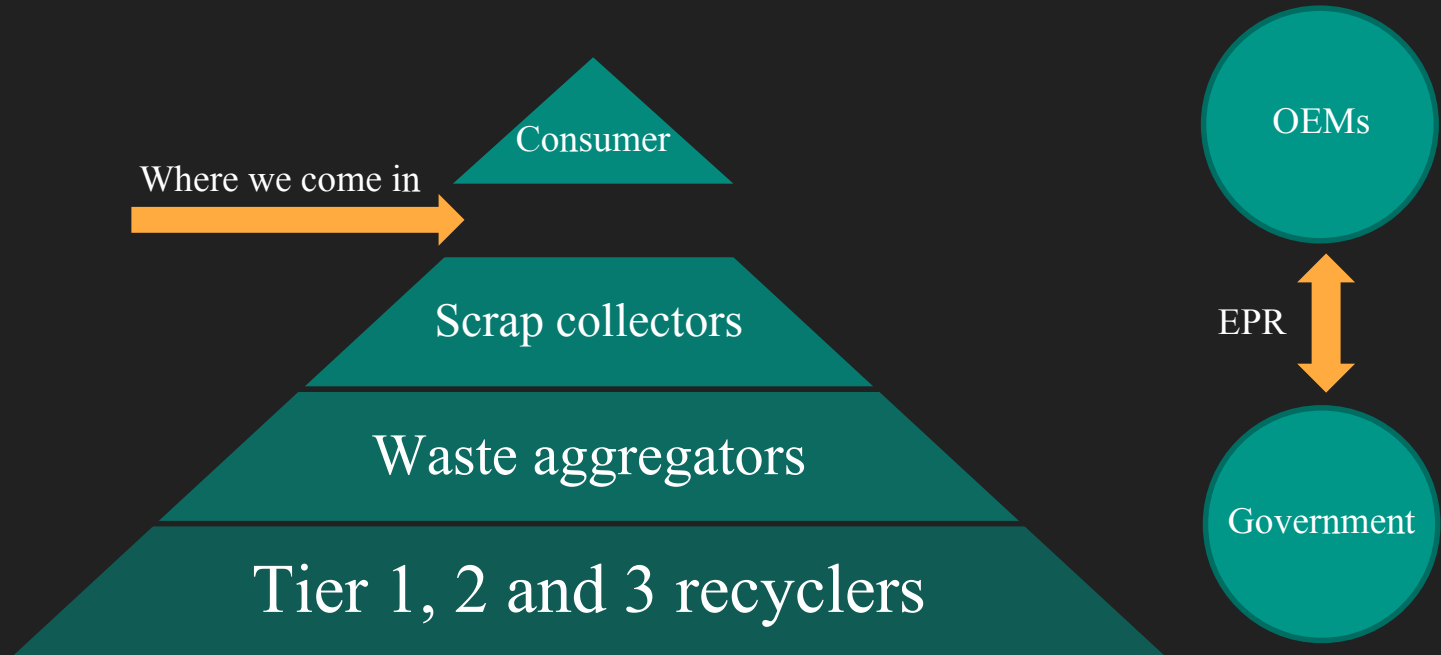
Introducing ScrApp

We created a digital platform to connect scrap producers (consumers) with the scrap collectors. By combining e-waste with other waste, we have a created a system by which e-waste is profitably removed from society.
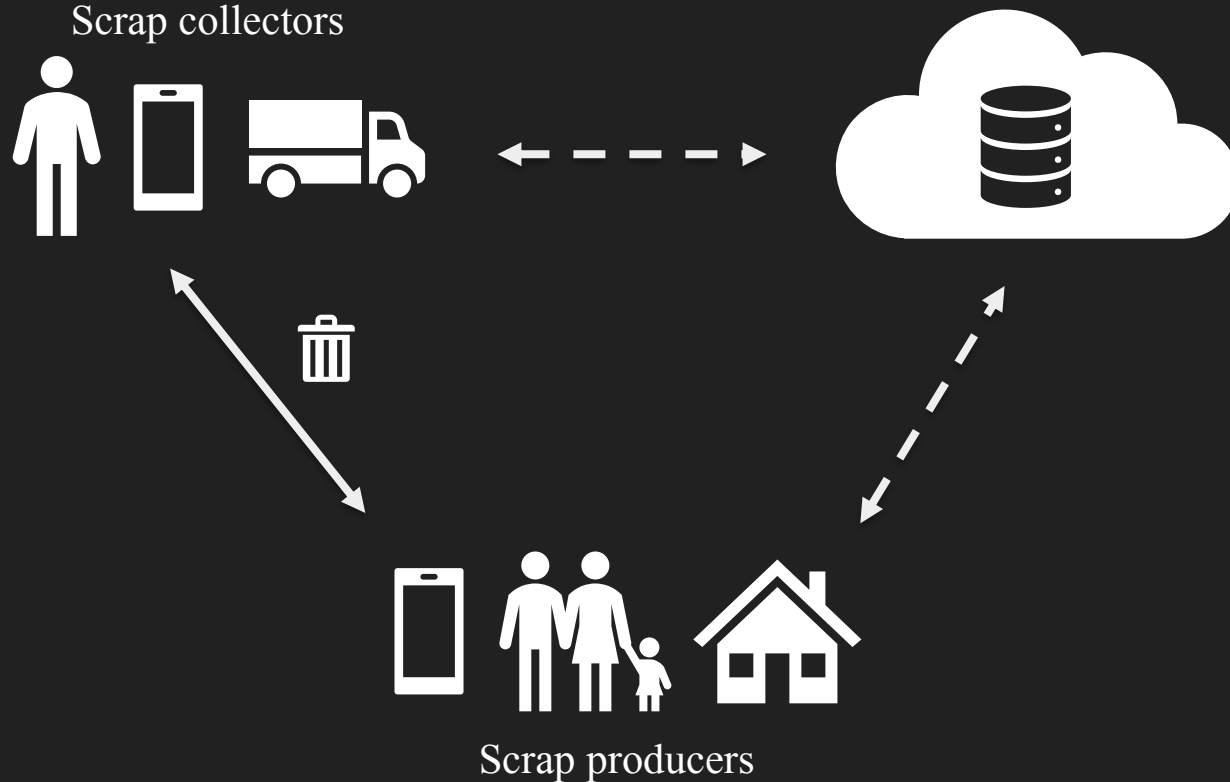
Attributes of the app:
- Route optimization algorithm for profit maximization using OR tools
- Provide legal support to the scrap dealers
- Engage in procurement of licenses
- Analyze data to predict trends of waste produced
- Help maintain records and inventory
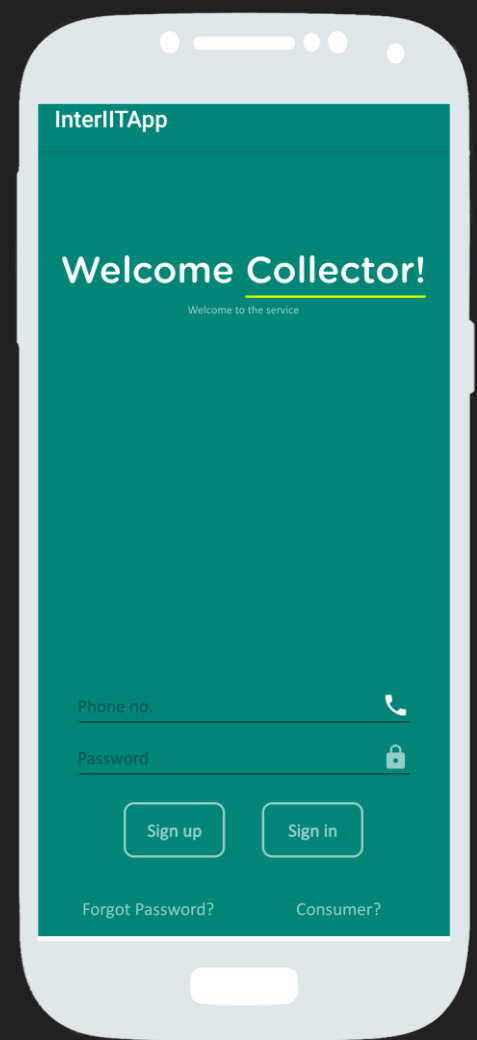
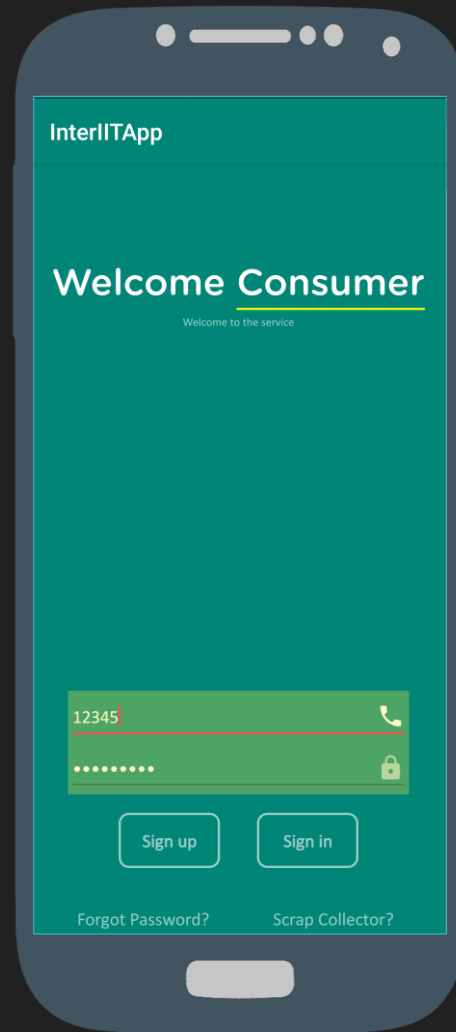# What ScrApp does
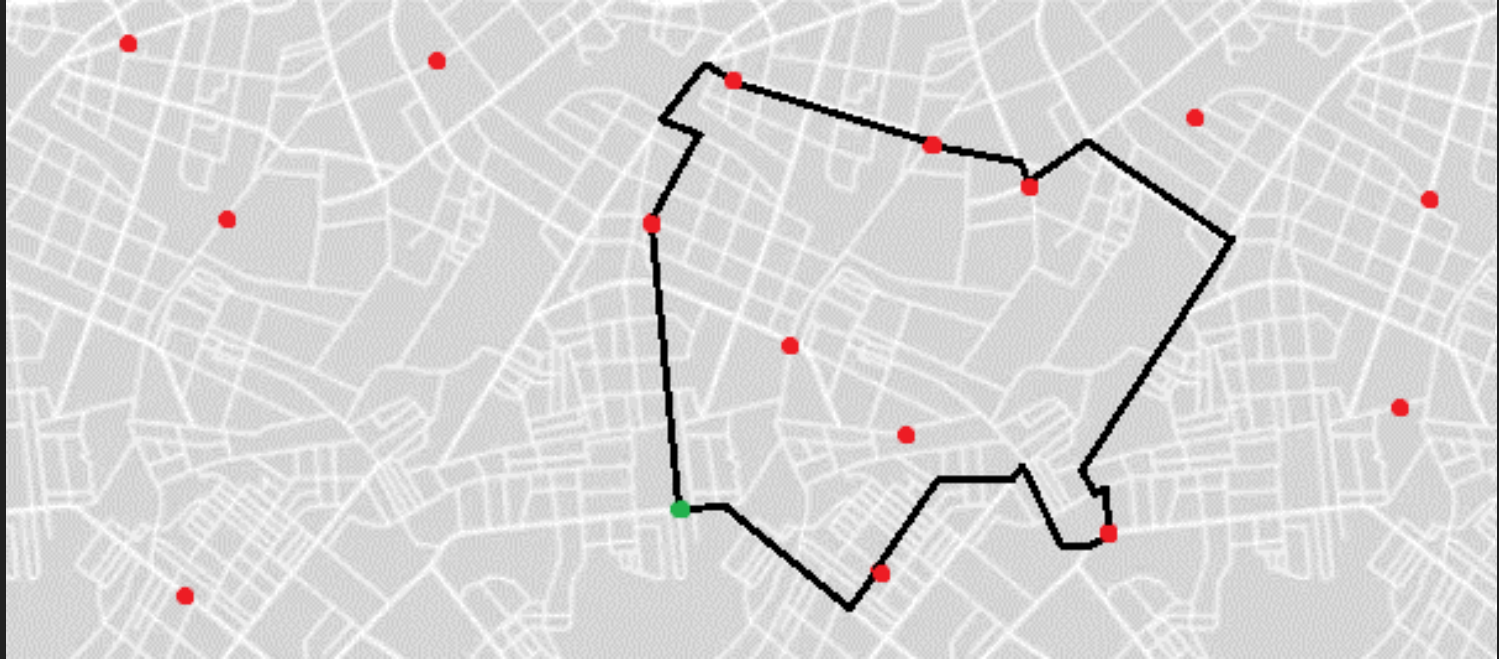
How ScrApp works

Scrap collectors

- Node JS
- MySQL
- OR – Tools, Google
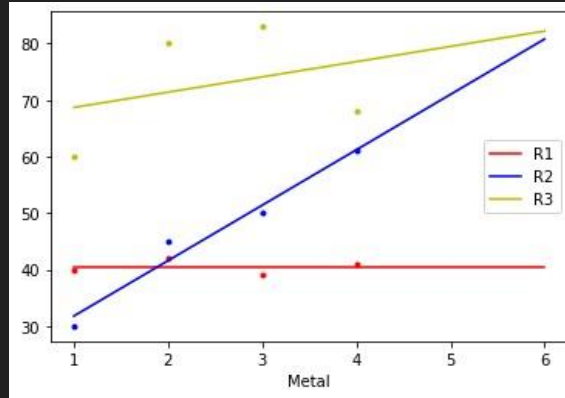- OSM API
- Waste data stored
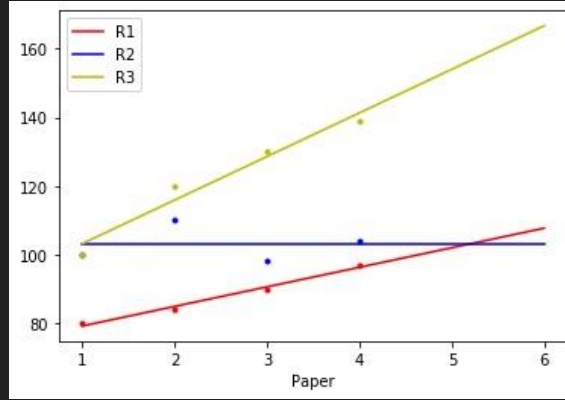
Scrap producers

- Money
- Rating

Demo

First, we show you the user interface, followed by the scrap collector's interface.

Studying trends

- From all the data collected from ScrApp, we can plot heat maps to identify regions where greater amounts of waste is being produced.

- Future trends can also be analyzed.

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
Scrap dealers (Raddhiwalas). Government agencies and Municipalities.	Connect the waste producers with the scrap dealers. Suggest optimal route for the scrap dealers. Collect data on the generation of different kinds of waste. Keep inventory of the scrap dealers updated. **Key Resources** Establishment of a brand. Contract with scrap dealers.	Raddhiwala knows beforehand the minimum profit he will get if he visits a certain customer. Provide official recognition and visibility to scrap dealers to formalize their businesses. Make recycling sector more organized by promoting standard and legal procedures. Make the process of waste management more convenient and profitable for common demographic.	Through the ScrApp app to lodge requests. One-to-one with the scrap collectors. **Channel** Through • Social media • PR • College fests • Word of mouth • Government association • Partnering with NGOs	Large firms and government institutions interested in collecting data from us. Different households. Scrap dealers using the app.

Cost Structure	Revenue Streams
Maintenance of the digital platform and management of data. Legal procedures and training scrap dealers. Managing a marketing and a PR team.	Selling data to companies and the government.

ScrApp

Impact of ScrApp

- Legalizes scrap dealers
- Ensures that the consumer and the scrap dealer both make a profit
- Makes it convenient for the user
- Increases the scrap dealer's expanse
- Uplifts the scrap dealer's standard of living
- Doesn't steal jobs, but improves the quality of existing ones
- Increases the scalability of e-waste collection sustainably
- Studies regions of waste productions to make more informed policy choices
- Statistically predict future waste production
- Ability to improve accessibility with time

Testimonials

Karpagambhal says, "This app will help us. We could use more publicity in and around this area."

Selvaraj says, "We don't mind collecting e-waste, but people need to be ready to give it to us."

Rajan from Saahas said "It is easy to collect e-waste from large firms, but it is the need of the hour to also start collecting e-waste from households as well."

Questions?

Thank you!

#JustScrAppIt

ScrApp