Efficient E-Waste Management

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Background

- Annual generation of E-Waste in Bangladesh is around 2.8 million metric tons[1]
- Annual casualties of child workers are more than 15% due to e-waste recycling[2]
- More than 83% have permanent health damage due to toxic exposure[2]
- E-Waste also leads to environmental pollution such as groundwater contamination and soil content disruption due to hazardous materials such as lead, mercury, zinc[3].

Objective

- E-Waste items have a great value to electroni-cs manufacturers, assemblers, recycle shops and scrap dealers.

  "One man's trash is another man's treasure"
  -Seanan McGuire
- Primary objective is to connect the owners of electronic devices (Seller end) to the above entities (Buyer end).

Applications and Benefits

- The proposed platform would spread more awareness among the people in regards to electronic wastes.
- This would incentivize more people towards contributing to recycling of e-waste thereby maximizing the amount of e-waste being recycled and reused.
- This would minimize the amount of e-waste being dumped.
- Adverse health and environmental effects would also be minimized due to less dumping of e-wastes.

Proposed Concept Design

- We propose a virtual platform to connect sellers and the buyers with electronic device(s).
- As an incentive, the sellers will be provided with digital currency of the platform, using which, they can purchase any electronic item in the long run.

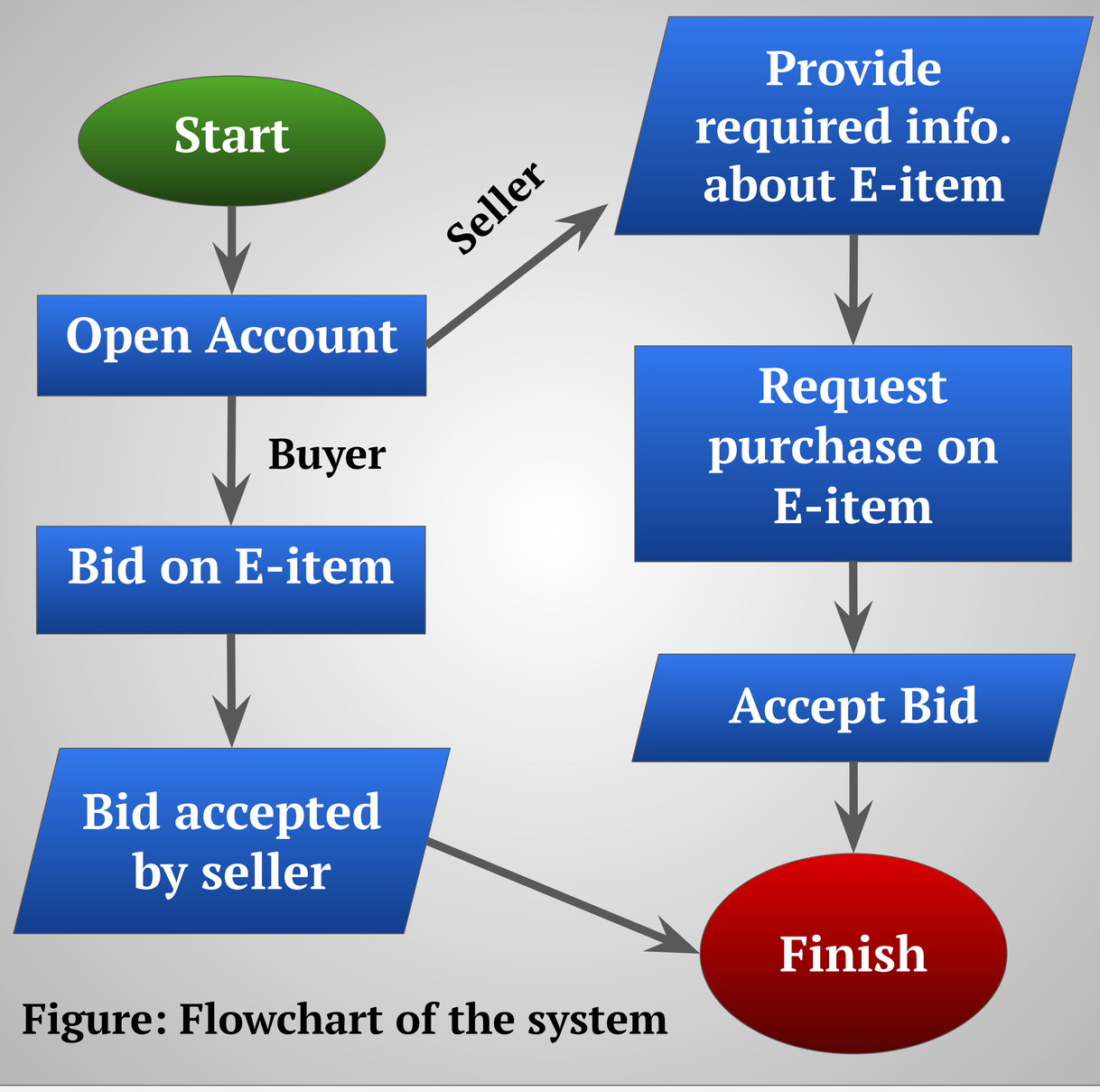

Figure: Flowchart of the system

Conclusions and Future Work

- We propose this platform to act as a bridge between e-waste collectors and sellers. This platform will hopefully reduce toxic materials released by simply dumping e-waste items.
- **Future work** may include intelligent recommendat-ion of pricing of the e-items using big-data analysis and machine learning algorithms.
- Additional research may be done by targeting specific electronic items which have low longevity for increased efficiency in reusing or recycling such items.

References

1. Yousuf, Tariq & Reza, Arif: E-Waste management in Bangladesh: Present Trend and Future Implication (2011).
2. R. T. Karim, N. Bari and M. A. Amin: E-waste management in Bangladesh. 2nd International Conference on Green Energy and Technology, 104-109 (2014).
3. Hossain, S., Sulatan, S., Shahnaz, F., Akram, A., Nesa, M., & Happell, J. E-waste: Bangladesh situation Study Report Environment and Social Development Organization (2010).