



E-waste management using game theory concept

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For the increased solid waste, the emergence of e-waste has been one of the most important and crucial problems faced by the world today. The disposal of an enormous amount of e-waste has been a challenging task for the municipal department of developed and growing nations. Furthermore, the disposal of e-waste creates environmental pollution and also affects the health impact of all living organisms. E-waste is collectively the waste from electrical and electronic equipment. Most of the electrical component and electronic gadgets that we use today are been made up of lead, cadmium, mercury, PVC, chromium, barium, phosphorus, nickel, and heavy metals. After certain usage of such electrical and electronic equipment, they are been replaced by new featured electrical and electronic equipment. The old electrical and electronic equipment are now been treated as e-waste. The average total e-waste accumulated by the outmoded or broken equipment was estimated at about 50 million tons each year. Among which, only 3% is being recycled and properly disposed of. Further, it has been estimated that e-waste can grow up to 60 million tons by 2021.

E-waste is averagely growing by 13 kilotons a day. It has grown above the alarming situation, and this is the right time to save the world from a hazardous situation by managing e-waste properly. This work proposes cooperative, non-cooperative, and volunteer's dilemma game theory concept to manage e-waste by decreasing its act of impact by taking the consumer, manufacturer, recycler, and government as key players. The advantage of game theory is that it makes rational decisions and thus improves the decision-making process.

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