THE SWAP PROJECT: A DEVICE TO RECYCLE POLYETHYLENE TEREPHTHALATE DRINKING BOTTLES THRU REFILL, RECHARGE VENDING MACHINE

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ABSTRACT

This study aimed to develop an eco-friendly device, the "Swap Project Vending Machine," designed to encourage users to recycle plastic bottles in exchange for essential services such as charging smartphones and refilling drinking water. By incentivizing recycling, the device helps reduce plastic waste, particularly in schools, while promoting environmental awareness. The research employed an experimental method, utilizing statistical tools to analyze variables and assess the performance of the machine. The results showed that the device successfully met its objectives and was deemed usable by students and staff at Norzagaray College. Despite minor limitations, such as the inability to accept larger or crumpled bottles and restrictions on submersion in water, the vending machine performed well in the test scenarios. The study contributes to addressing global warming by encouraging technological solutions for plastic waste management. It also supports proper solid waste management by targeting plastic bottles, a major cause of flooding. While other vending machines exist, the Swap Project offers the unique feature of returning power for smartphones or providing drinking water, making it a practical and valuable innovation. This study presents a novel approach to maximizing the utility of plastic waste, benefiting both users and the environment.

Keywords: *Polyethylene Terephthalate, PET, Plastic Bottles, Solid waste, Eco-friendly*