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| **Title:** | Smart Trash Collection System – An IoT and Microcontroller-Based Scheme | | |
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| **Abstract:** |  |
| Abstract— Aims: IoT-based trash collection system is a system that can automatically detect obstacles, which can be simplified as trash, and opens the Meta Bin lid to receive the trash. The main goal of the system is to make an environment where to find a digital and automatic way to the trash collection system.  Study Design: The existing research aims to design, simulate, and implement a new system that can play a vital role in terms of making the environment clean, in a large sense the world clean. Along with that a system that can carry not only a trash bin but also any portable devices as it can be operated automatically.  Place and Duration of Study: Department of Computer Science and Engineering and Department of Electrical and Electronic Engineering, American International University-Bangladesh (AIUB), Dhaka, Bangladesh between October 2022 and February 2023.  Methodology: In this work, we have designed a new model using Arduino, an IoT device, a servo motor, an ESP8266 Wi-Fi microchip, several DC motors, several IR Sensors, LEDs, etc. to build a system like Meta-Bin. Arduino IDE is used for program development.  Results: This is an automated trash bin, which has a different level of trash collection capacity with proper identifications and LED light indications. Also, a continuous notification system is enabled here. After testing the implemented system, the system gives an accurate result in every possible way and has an accuracy rate of more than 95%.  Conclusion: After the successful implementation of this research, we hope that there will be an autonomous, well-decorated, digital, and user-friendly system available for the citizens of Bangladesh. This will be immensely helpful for all kinds of people and to ensure a clean environment, this research might play a vital role soon. | |