



DESIGNING AN INNOVATIVE VENDING MACHINE THAT CONVERTS RECYCLED BOTTLES INTO ESSENTIAL SCHOOL SUPPLIES

ALDAY, YLLOISA M
BALANI, KATE HAYLEY V.
DULONGBINTE, MARJALYN N.
MAGAHIS, FRANK ANGELO T.
Balayan Senior High School

ABSTRACT

Plastic waste is becoming an alarming environmental concern, and schools and universities are key contributors through bottled drinks and packaging. Therefore, in this study, we propose a vending machine designed to promote recycling and education. This machine takes in recycled plastic bottles and provides in return essential school supplies like pens and notebooks. The vending machine combines recycling with rewards and thus sways students toward adopting sustainable habits while lightening their financial burden. In addition, the system targets plastic waste reduction, environmental awareness, and student support in terms of providing affordable learning resources.

The design includes major parts such as the Arduino Uno control systems, infrared sensors used for bottle detection, and micro servo motors controlling a spiral dispensing mechanism. The structure is made of sturdy plywood, with LED lights used for user feedback. The machine's programming ensures that the counting mechanism is accurate, and items are dispensed efficiently, thus ensuring smooth operations of the overall system. Through this

Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza

INSTABRIGHT e-GAZETTE

ISSN: 2704-3010

Volume VI, Issue IV

March 2025

Available online at <https://www.instabrightgazette.com>



effort, students are called upon to adopt eco-friendly practices, thereby adding to a cleaner
environment while gaining knowledge and skills in responsibility and sustainability.



Editorial Team

Editor-in-Chief: Alvin B. Punongbayan

Associate Editor: Andro M. Bautista

Managing Editor: Raymart O. Basco

Web Editor: Nikko C. Panotes

Manuscript Editors / Reviewers:

Chin Wen Cong, Christopher DC. Francisco, Camille P. Alicaway, Pinky Jane A. Perez,
Mary Jane B. Custodio, Irene H. Andino, Mark-Jhon R. Prestoza, Ma. Rhoda E. Panganiban, Rjay C. Calaguas,
Mario A. Cudiamat, Jesson L. Hero, Albert Bulawat, Cris T. Zita, Allan M. Manaloto, Jerico N. Mendoza
