

FINAL PROJECT
DESIGNING AN AR BASED INTERACTIVE BOOK ON
SORTING WASTE BY TYPE FOR CHILDREN AGED 9-12 YEARS

To Fulfill Partial Requirements for Obtaining a Bachelor's Degree (S-1)



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2025/2026

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AGREEMENT PAGE

**DESIGNING AN AR BASED INTERACTIVE BOOK ON SORTING
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STATEMENT OFF FREE PLAGIARISM

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Declaring that in this Final Project scientific document there is no part of other scientific works that have been submitted to obtain an academic degree in a Higher Education institution, and also there are no works or opinions that have ever been written or published by other people/institutions, except those that are cited in writing in this document and mentioned in full in the bibliography.

And I declare that this scientific document is free from elements of plagiarism. If in the future indications of plagiarism are found in this Final Project, I am willing to accept sanctions in accordance with the applicable laws and regulations.

Thus, I made this statement actually without any coercion from anyone and to be used as it should.

Surabaya, May 21, 2026

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ABSTRACT

The amount of waste that increases every year makes waste less manageable properly. Waste that accumulates for a long period of time can trigger a nest of diseases that are not good for human health. One of the steps that can anticipate these problems is to sort waste early. However, currently there are still many children who do not understand the types of waste material enough and apply it in daily life. The lack of interesting learning media is one of the factors that makes children less interested in waste sorting materials. Therefore, there is a need for educational and interactive teaching media to help children understand the types of waste through visual and technological approaches that are close to children.

This design uses a development research method with the ADDIE (*Analysis, Design, Development, Implementation, Evaluation*) model. Data collection was carried out through interviews, questionnaires, FGDs, and observations and literature studies to determine the needs of the target audience with appropriate media. The object of this design is a picture storybook with an *Augmented reality* feature in it which makes the learning process more interactive and easy for children to understand.

From the results of the analysis, it was found that there are still many students who do not understand the difference between organic, inorganic, and B3 waste. And also through the results of the questionnaire showed their interest in illustration books/picture books and gadgets in daily life. This book contains the daily story of a child named "Tio" by introducing the types of waste in his environment.

Through this design, it is hoped that this Augmented reality-based interactive illustration book can be an educational and effective learning tool in helping children understand the types of waste such as organic, inorganic, and B3. In addition, this learning media can also be one of the interesting learning innovations and remain relevant to the interest of children's learning systems today.

Keywords: Picture book, *Augmented reality*, Garbage sorting.

ABSTRACT

The amount of waste increases every year, making it difficult to manage properly. Waste that accumulates over a long period of time can become a breeding ground for diseases that are harmful to human health. One step that can help address this problem is to sort waste from the very beginning. However, many children still do not fully understand the different types of waste and how to apply this knowledge in their daily lives. The lack of engaging learning materials is one factor contributing to children's disinterest in waste sorting. Therefore, there is a need for educational and interactive teaching materials to help children understand waste types through visual approaches and technology that resonate with them.

This design employs a research-development method using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). Data collection was conducted through interviews, questionnaires, focus group discussions (FGDs), observations, and literature reviews to identify the target audience's needs and determine suitable media. The design object is a picture book featuring augmented reality (AR) capabilities, making the learning process more interactive and easier for children to understand.

Analysis revealed that many students still do not understand the differences between organic, inorganic, and hazardous (B3) waste. Additionally, questionnaire results indicated their interest in illustrated books and digital devices in daily life. This book features the daily story of a child named "Tio," introducing the types of waste in his environment.

Through this design, it is hoped that this Augmented Reality-based interactive illustrated book can serve as an educational and effective learning tool to help children understand the different types of waste, such as organic, inorganic, and hazardous waste. Furthermore, this learning medium can also serve as an engaging educational innovation that remains relevant to children's current learning interests.

Keywords: *Picture books, Augmented reality, Waste sorting.*

FOREWORD

Praise be to Allah SWT for the presence of Allah SWT because only with His grace, grace, and guidance can the author complete the Final Project report entitled "*Designing an AR-Based Interactive Book on Waste Sorting by Type for Children Aged 9-12 Years*". This report was prepared as one of the graduation requirements for taking Strata-1 Education at the Visual Communication Design Study Program, Faculty of Architecture and Design, "Veteran" National Development University, East Java.

In compiling the design of this final project, the author would like to express his deepest gratitude to the parties who have provided advice, direction, and assistance both from data collection to the final result of the design of this final project. This gratitude is given to:

1. Mr. **Ibn Sholichin, S.T., M.T.** as the dean of the Faculty of Architecture and Design.
2. Mrs. **Masnuna, S.T., M.Sn.** As the main supervisor who patiently helps provide direction and input during the process of working on this final project.
3. Mrs. **Aileena Solicitor Costa Rica El Chidtian, S.T., M.Ds.** As the second supervisor who has provided input in helping to improve the process of working on the final project.
4. Mr. **Bayu Setiawan, S.Sn., M.Sn.** and Mrs. **Aninditya Daniar, S.Sn., M.Sn.** as an examiner lecturer who provides criticism and constructive suggestions for a better final design result.
5. The speakers who have spent their time and knowledge during the process of working on this final project, among others:
 - a. **Mrs. Okta**, as a teacher and homeroom teacher of grade 4B of SDN Tenggulunan, Candi, Sidoarjo, who helped provide information related to waste sorting materials at school and her assistance in obtaining data on elementary school children's understanding of waste sorting materials,

- b. **Mrs. Milfa** Saadah, as a children's book illustrator who has helped provide her insight into the process of making good children's books for children.
6. Both parents and family who always give encouragement, prayers, enthusiasm, and help to the writer so that the writer can complete this final project.
7. Comrades in the Visual Communication Design Study Program, who became the inspiration and motivation as well as the spirit in the process of working on the final project.
8. The writer's closest friends, who always give encouragement, and take their time and energy during the process of working on the final project.

The author realizes that this final project report is not free from errors and there are shortcomings. Therefore, all suggestions and criticisms are highly expected for the improvement of this report in the future. Hopefully this report can be useful for both the author and the reader, and it is hoped that it can be a reference and source of inspiration in instilling an understanding of waste sorting to children with a design and technology approach.

Surabaya, May 14, 2026

Michelia Alba

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