

# Ensuring formal Plastic collection for recycling using “Recyclo” mobile application

**Section: E**

Submitted By

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# Ensuring formal Plastic collection for recycling using "Recyclo" mobile app

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**Abstract:** The purpose of this paper is to investigate how formal method could be formed for recycling companies. To reduce plastic waste, "Recyclo" mobile application is proposed for immediate communication between user & recycling companies. To conduct this research, a survey was carried out to observe the number of people about their opinions on "Recyclo". After thorough analysis of the data collected, 71.4% of the total respondents supported the idea. So, it is recommended that, this app should be implemented for the betterment of recycling industry.

**Index – Recyclo, recycling companies, pollution**

## I. INTRODUCTION

### A. Background information

Around 1,700 tons of plastic waste is produced in the country every day and only half of it is recycled, according to the Department of Environment.

In Dhaka city alone, plastic waste has gone up more than 3.5 times from 178 tons per day in 2005 to 646 tons per day in 2020. Of that 646 tons, only 37 per cent is recycled, and mostly by the informal sector, according to the World Bank. [1]

It is almost impossible to imagine a day without any use of plastic. Clogged drains, bags fluttering in the wind, masses of plastic piled in dumps, and road corners have become an everyday reality in Bangladesh.[1]

When people eat fish, they consume microplastics, as these fishes come from rivers and seas. Around 94 per cent of tap water is contaminated with microplastics in the US and the number is higher in countries like Bangladesh.

Also, the Covid-19 pandemic has made things worse and caused a surge in the use and improper disposal of plastic waste. Globally, more than 129 billion disposable

masks and 65 billion throw-away gloves are used every month – most ending up in our rivers and oceans, according to an Environmental Sciences and Technology journal estimate. The impact of plastic pollution could be accelerated by climate change in Bangladesh, at a scale that is yet to be understood.

### B. Overview of this report

This research paper is about to solve the aforementioned problem. The main purpose of this report is to focus on ensuring a better method to turn informal way of collecting plastic for recycling into formal manners by providing a user the delicacy of getting rid of plastic through a better communication services between a user and recycling companies. Furthermore, this report will show how collection of plastic wastes could be made much easier through an online mobile application for recycling.

## II. METHODOLOGY

### A. Solution

The process of collecting plastic in Bangladesh is informal. The collection is done by garbage picker who picks garbage and stores the plastic found while picking garbage and sells it to some individual whom ends up selling it to the companies who recycles. This process takes time and is not efficient. With the help of new, innovative technologies, such as smart phone applications, not only the problems related to plastic collection will be dealt but also the time for collection will be reduced and percentage of plastic waste from the environment will be decrease due to instant communication with recycling companies. Therefore, an app that allows users to inform recycling companies for any stored or unused plastic could recycled and reused.

### B. Method used

In this report, both qualitative and quantitative data is used. A survey questionnaire was conducted to identify

people's opinion of plastic wastes, as well as, how often people throw plastics in trash can which will not be recycled and remain a garbage to the society and how having a mobile app that could resolve these problems, could be helpful. The survey contained a total number of 9 questions including 4 basic questions and 1 open ended question asking if they had any other suggestions for animal welfare and rescue. Google forms was used to collect the data and there were in total 35 responses.

### C. Selection of participants

As this report doesn't target any specific group of people, the survey questionnaire was provided to all classes and all ages of people living in Bangladesh where men and women almost equally participated. From the responses, it was found that most of the participants were students who are in between age 19 to 24 and living in Dhaka City whereas some of them were different types of employees or students living in different cities of Bangladesh.

## III. FINDINGS AND ANALYSIS

### A. Findings

1)

How many items do you purchase on daily basis which contains plastic  
35 responses

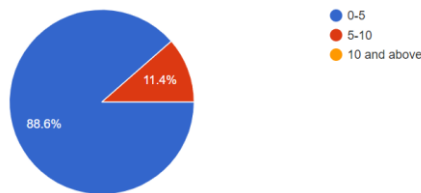


Fig. 1.1: Pie Chart of respondents on their daily usage of plastic

2)

What do you do with the plastic waste in your house?  
35 responses

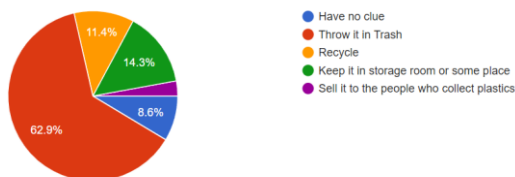


Fig 1.2: Percentages of respondents what they do with the waste of plastic in their residents

3)

Would you like to contribute your small amount of time for recycling?  
35 responses

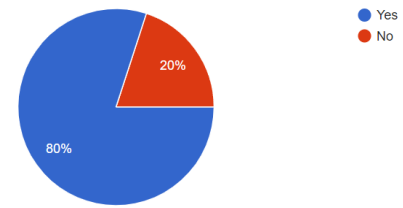


Fig 1.3: Percentages of respondents on varying levels of agreement with recycling

4)

Would you prefer to use an app to contribute in recycling?  
35 responses

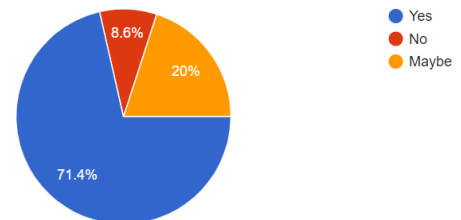


Fig 1.4: Percentages of respondents on varying levels of agreement with recycling through mobile app

What do you expect the application to do?  
35 responses

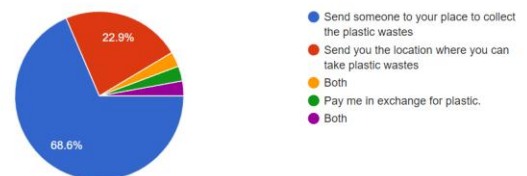


Fig 1.5: Percentages of people on varying levels of expectations for mobile app

### B. Analysis of the Data

From the survey, a total of 35 responses were collected and most of them were students, aged 19 to 23, whereas very few of them were employed or in higher studies. As seen from the pie chart shown in Fig. 1.1, majority of respondents purchases items which contain plastic in quantity less than six (88.6%). And from the Fig 1.2 majority throws the plastic wastes in trash can (62.9%) and some of them keep it stored (14.3%) and some has no clue where the plastic wastes are ends up being. Only a small number of respondents recycles (11.4%). Which indicates the huge amount of plastic is being wasted in garbage and never being recycled.

From the analysis of data in Fig 1.3, the percentage of people who were interest in contributing to recycle is 80%. And also, from the Fig 1.4 most of the people are interested to a mobile application to recycle (71.4%). This shows people interest in recycling and the scope of success for a mobile application might have for recycling.

From Fig 1.4 most of the people expect to have assistance for taking the plastic waste from their residence (68.8%). And some amounts of people were interested to do it by themselves (22.9%). This shows the must necessity of the application and points the needing feature for the application.

#### IV. RECOMMENDATIONS

As the “Recyclo” application would be an interactive platform where a communication service will be provided, users will have to create an account first and to do that they will be allowed to register as any of the four types given below.

- Normal user
- Companies

These will be the main actors of this project who will interact with the app.

As the actors are different, there will be separate operations for each type of users.

Operations that normal users will be able to perform are:

- Request for collection
- Search for nearby recycling centers

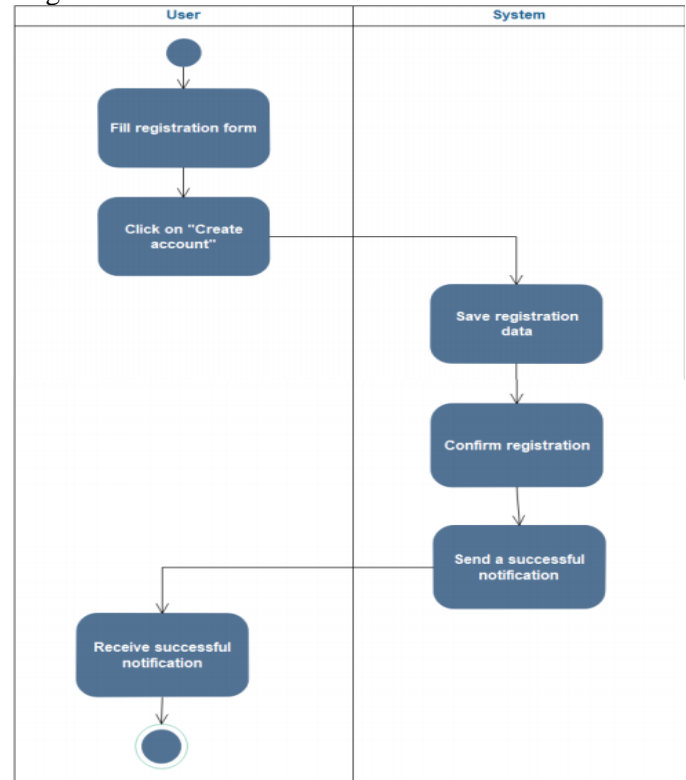
A Company, may update their buying rate for users to sell.

User can,

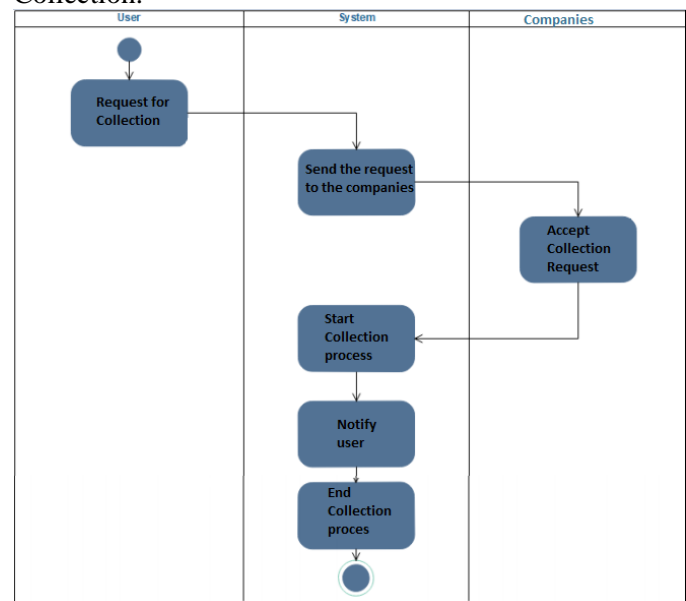
- See the amount of money they will receive based on weight and type of the plastic.
- Contact companies to send someone to collect

Here is a visual of 2 of the main operations that will be performable through this app.

Registration:



Collection:



These are the 2 main operations of this application. And as this app's main purpose is to ensure better collection process for plastic to recycle also as this app doesn't target any specific age group of people so, if this project is implemented correctly, this can be huge beneficial to

everyone including user by getting rid of wastes and companies by through better and reliable source of plastic.

## V. LIMITATIONS

Even though the open-ended question, that asked for suggestions at the end of the survey was optional, only a few recipients have answered to it. Some more valuable suggestions could have helped to provide solutions to this issue more precisely. Also, to conduct this research, if some more time was provided and if face to face communication was available, this research team could have come up with more specific solutions for this issue.

Suggestion for making plastic collection easier

35 responses

Establishing recycle points in every ward of every city

Pay people for gathering plastics so that they become more interested.

I want people or organization to work with waste management workers in this regard, I think it's might be the fastest way

## VI. CONCLUSION

In conclusion, with so many features the “Recyclo” application may provide, it can be said that the app would greatly improve the nature and reduce the amount of plastic waste. There are many downsides of excess plastic in nature as plastic thrown in sea hampers marine life of fishes, whales so on. Thought out the usage of “Recyclo” the need of producing plastics will reduce and the companies involved in this sector will be benefited though a reliable source of plastic and a formal collection process which is not present in present time.

## VII. ACKNOWLEDGEMENT

I would like to express our gratitude towards our course instructor for the support, counselling and stimulating our interest in the subject. We also sincerely thank all of the recipients who have participated in the survey questionnaire.

## REFERENCES

- [1] “Bangladesh's burden of plastic waste” <https://www.unb.com.bd/category/bangladesh/bangladeshs-burden-of-plastic-waste/79401>
- [2] E-R diagram From 5<sup>th</sup> semester Project

## VIII. APPENDIX

35 responses



Accepting responses



Summary

Question

Individual

Name

35 responses



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