



A P S COLLEGE OF ENGINEERING

Anantha Gnana Gangothri Campus,
Somanahalli, Kanakapura Road, Bengaluru – 560082

Information Science & Engineering Department



Ref: APSC E / ISE / 038 / 2023

Date: 26/06/2023

Report on BBMP Project “Data Analytics on Solid Waste Management”
Rollout program in association of NSS Wing of APSCE on 24th June 2023 at
8am at Kumarswamy Layout, BBMP Bangalore South Zone.

Waste disposal and waste management play a vital role in maintaining a clean and healthy environment. Proper waste management practices not only contribute to the preservation of natural resources but also prevent pollution and safeguard public health. This small note aims to raise awareness among individuals and communities about the importance of responsible waste disposal and effective waste management.

Reduce, Reuse, Recycle: The mantra of "reduce, reuse, recycle" forms the foundation of sustainable waste management. Emphasize the significance of reducing waste generation by avoiding unnecessary purchases and opting for durable, long-lasting products. Emphasize the significance of reducing waste generation by avoiding unnecessary purchases and opting for durable, long-lasting products. Encourage the reuse of items whenever possible to extend their lifespan and minimize waste. Promote recycling by segregating recyclable materials and ensuring they reach appropriate recycling facilities.

Proper Segregation: Proper waste segregation is crucial for effective waste management.. Provide clear instructions on how to segregate waste at the source and highlight the benefits of doing so, such as reducing landfill space and facilitating recycling processes.

Composting: Promote the practice of composting organic waste, such as kitchen scraps and garden trimmings.

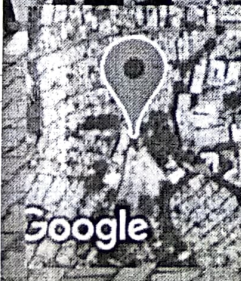
Responsible Disposal Methods: Educate people about proper disposal methods for different types of waste.

Community Participation: Highlight the significance of community participation in waste management.

Stay Informed: Urge individuals to stay informed about waste management practices, local regulations, and updates on recycling facilities.

APSCE Social Awareness Program and Survey Camp on Waste Management

Report on the APSCE Social Awareness Program and Survey Camp on Waste Management at Kumaraswamy Layout. The Department of Information Science and Engineering (ISE) in association with the National Service Scheme (NSS) organized a Social Awareness Program and Survey Camp on Waste Management. The event was held at Kumaraswamy Layout in collaboration with the Bruhat Bengaluru Mahanagara Palike (BBMP). The objective of the program was to raise awareness about waste management practices among the residents and evaluate the existing waste management infrastructure in the locality.



Bengaluru, Karnataka, India

No. 1750, 14th Main Rd, opposite 1st Stage, 1st Stage, Kumaraswamy

Layout, Bengaluru, Karnataka 560078, India

Lat 12.907614°

Long 77.564284°

24/06/23 08:46 AM GMT +05:30



BRUHAT BENGALURU MAHANAGARA PALIKA IN ASSOCIATION WITH A P S COLLEGE OF ENGINEERING



The daily work of collecting, sorting and disposing of garbage done by BBMP civic workers is very complicated, so to ease this task, A P S College of Engineering has joined hands with BBMP and undertaken a project "Data Analytics on Waste Management System".

The APSCe initiative social awareness program and survey camp on waste management at Kumarswamy layout.

- Date : JUNE 24th 2023. @8:00 AM
- Venue: BBMP office, Opposite to Sagar hospital Kumarswamy layout, Bengaluru-78.

Organized by Dept. of ISE and NSS wing :

Dr. Kumar B I D - Program coordinator,
Mr. Sridhar B D - NSS and sports officer,
All ISE Dept. teaching staff members.

In the presence of

N MANJUNATH

Assistant Executive Engineer, BBMP

CHANDAN J & BHARATH B N

Junior health Inspectors, BBMP

DR. A.G. NATARAJ

Principal, APSCe Bengaluru

Student coordinators:

SREYAS CHEVURI (ISE) | SUMAN NAIDU R (ISE) | RAKSHITHA N (ISE) | VAIBHAV KARANATH K (ISE) |



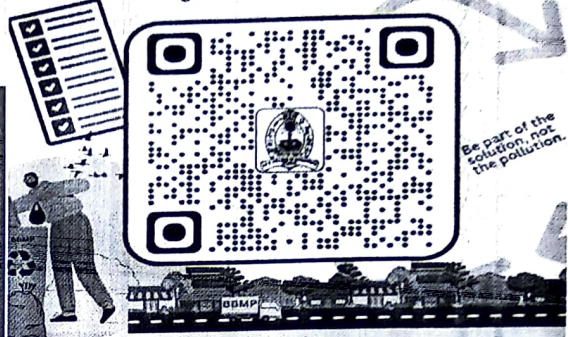
BRUHAT BENGALURU MAHANAGARA PALIKA WASTE DISPOSAL SURVEY IN ASSOCIATION WITH A P S COLLEGE OF ENGINEERING

Annual College Engineering Campus, Somnahalli, Kanakapura Road, Bengaluru - 560023



The daily work of collecting, sorting and disposing of garbage done by BBMP civic workers is very complicated, so to facilitate this task, A P S College of Engineering has joined hands with BBMP and undertaken a project on "Data Analytics on Waste Management System". So please cooperate and complete this survey.

SCAN THE QR CODE TO give survey digitally



Be part of the solution, not the pollution.

Program Coordinator: Dr. Kumar B.I.D,

Professor & HOD, Dept of ISE, APSCe, Somnahalli, Bengaluru - 82

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS SURVEY



ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ ಕಾರ್ಪೊ ಎ.ಪಿ.ಎಸ್ ಕಾಲೇಜ್ ಮತ್ತು ಪುನರ್ವಿನ್ಯಾಸದ ದುರದೃಷ್ಟಿಯಿಂದ ಸಹಯೋಗದೊಂದಿಗೆ ಪ್ಲಾಸ್ಟಿಕ್ ವಿಲೇವಾರಿ ಸಮೀಕ್ಷೆ ಆಯೋಜಿಸಲಾಗಿದೆ. ಸಹಭಾಗಿತ್ವ, ಸಹಭಾಗಿತ್ವ, ಸಹಭಾಗಿತ್ವ. 2023



ದಿನವೂ ವಿಲೇವಾರಿ ಮಾಡಿ ನೀಡುವ ಕೆಲಸವನ್ನು ಸುಗಮವಾಗಿ ಮತ್ತು ಸರಿಯಾಗಿ ಮಾಡಲು ಸಹಭಾಗಿತ್ವದೊಂದಿಗೆ ಪುನರ್ವಿನ್ಯಾಸದ ದುರದೃಷ್ಟಿಯಿಂದ ಸಹಯೋಗದೊಂದಿಗೆ ಪ್ಲಾಸ್ಟಿಕ್ ವಿಲೇವಾರಿ ಸಮೀಕ್ಷೆ ಆಯೋಜಿಸಲಾಗಿದೆ. ಸಹಭಾಗಿತ್ವ, ಸಹಭಾಗಿತ್ವ, ಸಹಭಾಗಿತ್ವ. 2023



BRUHAT BENGALURU MAHANAGARA PALIKA WASTE DISPOSAL SURVEY IN ASSOCIATION WITH A P S COLLEGE OF ENGINEERING



The daily work of collecting, sorting and disposing of garbage done by BBMP civic workers is very complicated, so to facilitate this task, A P S College of Engineering has joined hands with BBMP and undertaken a project on "Data Analytics on Waste Management System". So please cooperate and complete this survey.

Door no. _____ Cross no. _____ Ward no. _____ Block no. _____

	YES	NO
1. Is waste being disposed properly in your community?	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the waste collection vehicle coming daily?	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the arrival time of the waste collection vehicle convenient for you?	<input type="checkbox"/>	<input type="checkbox"/>
4. Is the waiting time of garbage collection vehicle short?	<input type="checkbox"/>	<input type="checkbox"/>
5. Are the waste collectors not willing to collect the waste due to it being mixed?	<input type="checkbox"/>	<input type="checkbox"/>
6. Is segregation of waste a difficult task?	<input type="checkbox"/>	<input type="checkbox"/>
7. Do you hesitate to throw away personal waste like alcohol bottles, sanitary pads etc. into the garbage vehicle?	<input type="checkbox"/>	<input type="checkbox"/>
8. Are garbage collectors expecting money to collect garbage?	<input type="checkbox"/>	<input type="checkbox"/>
9. Are people in your vicinity disposing huge waste (construction waste, old furniture, etc.) in BBMP vehicle?	<input type="checkbox"/>	<input type="checkbox"/>
10. Do you find it difficult to dispose of waste promptly? (During emergency situations)	<input type="checkbox"/>	<input type="checkbox"/>
11. If you are unable to dispose waste in the collection vehicle, are you disposing it elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>
12. Are you aware of disposal of the following wastes? (Hazardous Chemical, Medical Waste, Paint).	<input type="checkbox"/>	<input type="checkbox"/>
13. How often do you dispose garbage in a week?	<input type="text" value="DAYS"/>	
14. Did you know carrying garbage away from your house premises is a penalizable offence?	<input type="checkbox"/>	<input type="checkbox"/>
15. Did you know disposing construction /demolition waste in open area or streets is a penalizable offence?	<input type="checkbox"/>	<input type="checkbox"/>



Is there anything else you would like to share?

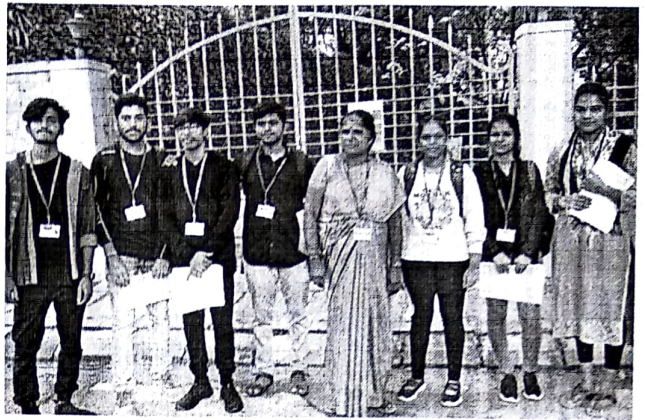
Program Coordinator: Dr. Kumar B.I.D, Professor & HOD, Dept of ISE APSCe, Somnahalli, Bengaluru - 82

THANKYOU FOR TAKING THE TIME TO COMPLETE THIS SURVEY

Date and Venue:- The APSCE Social Awareness Program and Survey Camp on Waste Management took place on 24th June 2023 at 8:00am at Kumarswamy Layout, Bengaluru. The main venue for the program was BBMP. The event witnessed active participation from the ISE department students, NSS volunteers, and staff.

Program Highlights:-

- **Inauguration and Orientation:** The event commenced with an inaugural ceremony where dignitaries from APSCE, NSS, and BBMP delivered motivating speeches, emphasizing the importance of waste management and community participation.
- **Awareness Talks and Presentations:** Subject matter experts and environmentalists delivered informative talks on various aspects of waste management, including segregation, composting, recycling, and the adverse effects of improper waste disposal. Visual aids such as slideshows and presentations were used to enhance understanding.
- **Survey and Data Collection:** As part of the survey camp, participants were divided into groups and assigned specific areas within Kumarswamy Layout. They conducted surveys to assess the current waste management infrastructure, identify challenges faced by residents, and gather data on waste generation patterns.
- We the students from 4th and 6th semester are divided into 8 groups with the BBMP office workers and visited many houses near kumarswamy layout and had a survey on waste disposal. It was an amazing experience for us.



An initial recommendation based on the finding of the survey camp goes like this:

The BBMP considers implementing a comprehensive waste segregation system across Kumarswamy Layout.

1. Awareness campaigns are conducted regularly to reinforce the importance of waste segregation and responsible waste disposal.
2. Adequate waste collection infrastructure, including bins and collection points, is provided throughout the locality.
3. Initiatives are undertaken to promote recycling and composting practices among residents.
4. Regular monitoring and evaluation of the waste management system in Kumarswamy Layout not only that we should carried out to track progress and address any challenges that may arise in all the locality.

In addition to the Social Awareness Program and Survey Camp on Waste Management, the ISE department in association with BBMP undertook a collaborative project titled "Data Analytics on Waste Management System." This project aimed to analyze the collected data and leverage data analytics techniques to gain insights into the waste management system in Kumarswamy Layout.

Data Collection and Analysis: The survey camp conducted during the program collected extensive data regarding waste generation, segregation practices, collection infrastructure, and challenges faced by residents. The collected data formed the basis for the data analytics project.

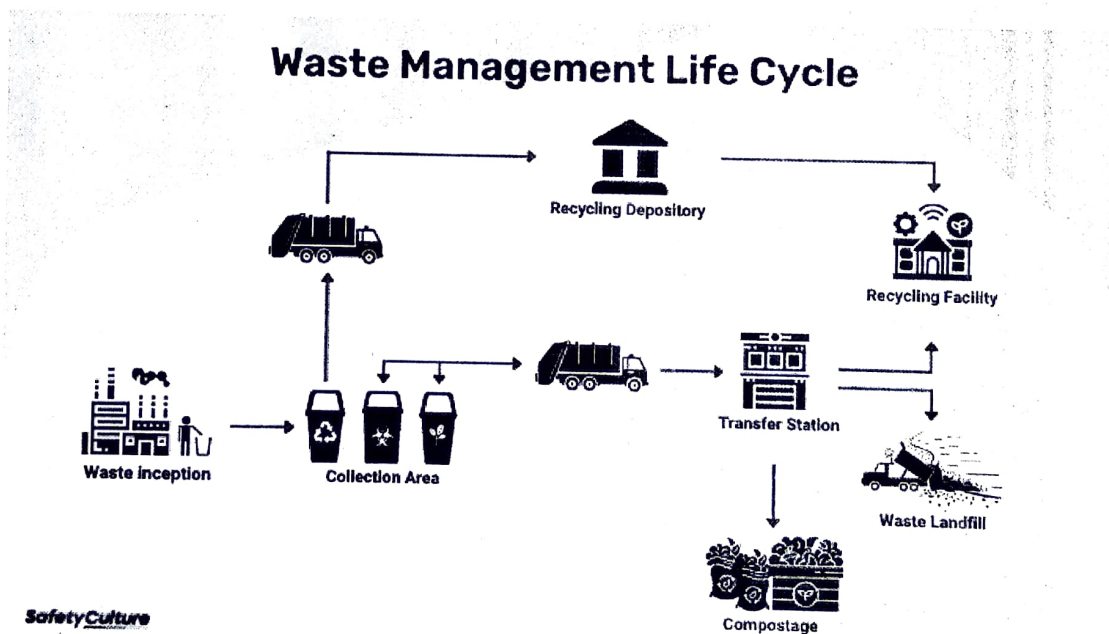
The project teams employed various data analytics techniques to process and analyze the data. This included data cleaning, transformation, and statistical analysis. Advanced analytics methods such as machine learning algorithms and predictive modeling were also utilized to uncover patterns, trends, and correlations within the data.

Key Findings and Insights:-

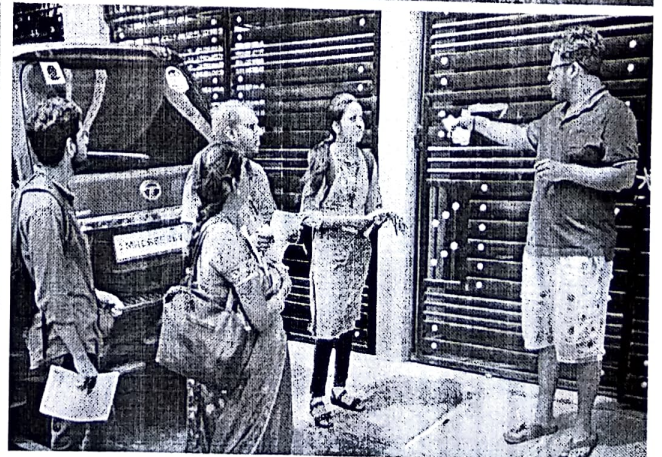
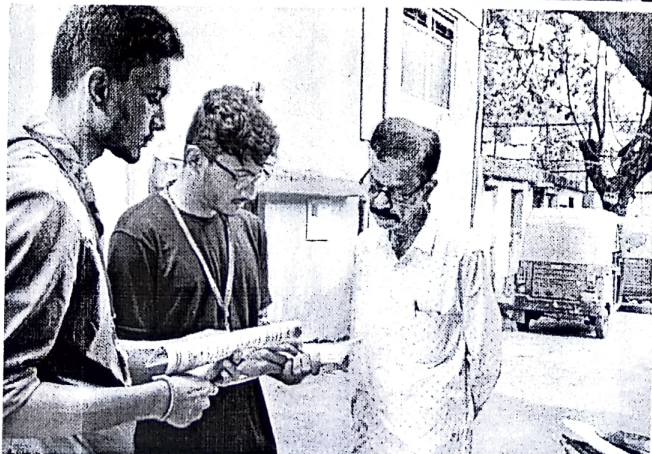
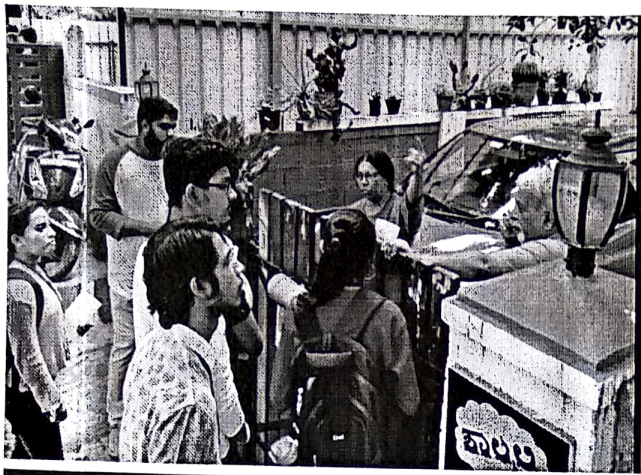
Through the data analytics project, several key findings and insights were derived, shedding light on the waste management system in Kumarswamy Layout. Some of the notable findings include:

1. **Waste Generation Patterns:** The project analyzed the data to identify peak periods of waste generation, which could help in optimizing waste collection schedules and resource allocation.

2. **Segregation Efficiency:** By examining the data, the project team assessed the effectiveness of waste segregation practices in the locality. Insights were gained into the extent of adherence to segregation guidelines and areas that required improvement.
3. **Collection Infrastructure Evaluation:** The data analytics project provided an assessment of the existing waste collection infrastructure, including the placement of bins, collection points, and their utilization. Recommendations were made for optimizing the infrastructure based on the data analysis results.
4. **Optimize Waste Collection Routes:** Utilize the predictive models developed to optimize waste collection routes, considering peak periods and patterns of waste generation.
5. **Targeted Awareness Campaigns:** Utilize the data analysis results to design and implement targeted awareness campaigns addressing specific challenges identified, such as encouraging proper segregation practices and reducing contamination in recyclable waste.
6. **Infrastructure Upgrades:** Allocate resources for necessary upgrades in waste collection infrastructure, including the placement of bins and the establishment of additional collection points in high-density areas or areas with inadequate infrastructure.



Outcome of this project will only on complete data analysis done over primary survey data and subsequent data analytics.



By adopting responsible waste disposal practices and actively participating in waste management efforts, we can make a significant impact on the environment and our communities. Together, we can minimize waste, conserve resources, and create a sustainable future. Let's take small steps towards responsible waste management and inspire others to do the same, for the betterment of our planet and future generations.

By incorporating these recommendations, the collaborative efforts of the ISE department, NSS, and BBMP can result in a more efficient and sustainable waste management system in Kumarswamy Layout, benefiting the community and the environment.

The APSCE Social Awareness Program and Survey Camp on Waste Management at Kumarswamy Layout was a resounding success. The event succeeded in raising awareness among the community regarding proper waste management practices. The data collected during the survey camp will serve as a valuable resource for future waste management initiatives. The collaboration between APSCE, NSS, and BBMP exemplifies the importance of public-private partnerships in addressing social and environmental issues.

We extend our heartfelt gratitude to all the participants, volunteers, organizers, and dignitaries for their valuable contributions to the success of the program. Special thanks to the management of APSCE and BBMP for their support and encouragement.

Student coordinators:

SREYAS CHEVIRI (ISE) | SUMAN NAIDU R (ISE) | RAKSHITHA N (ISE) | VAIBHAV KARANTH K (ISE) |

Program Coordinator:

Dr. Kumar B I D – Program Coordinator

Mr. Sridhar B D – NSS and Sports Officer

All ISE Department Teaching and Non-Teaching Staff members



Dr. Kumar B I D

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26/6/2023

Dr. A. G. Nataraj

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