Smart JAMP

APPLICATION FORM for Smart City Project Formulation Study

PROPOSAL SUMMARY	
Project Title:	Smart Bin
Project Location:	Kuala Lumpur City Centre
Name of Applicant City/Org:	Kuala Lumpur City Hall (KLCH)
Category of the study:	A. Pre-feasibility study To determine priority among several alternatives on a particular field or part of an entire smart city project. B. Feasibility study To examine the feasibility or concrete details of an individual project composing the smart city project. C. Experimental implementation To confirm applicability of a particular solution or technology for the smart city project in cooperation with Japanese solution provider(s).

PROJECT DETAILS

DESCRIPTION OF THE PROJECT	
Project Summary/Background: - *Present condition of the smart city project* - *Sectoral development policy of the local government / municipality on the smart city project* - *Short-term objective* - *Long-term objective* - *Other relevant projects, if any*	Smart Waste Management (Smart Waste for Smart City) is a solid waste management that uses a smart technology system which aims to manage solid waste efficiently. The application of planned model of garbage collection system especially for city centre area. Within the planned system, the extent of waste within the garbage bin is detected with the assistance of level sensor and it will ceaselessly communicate with the authorized control room through the GSM module. Micro-controller is employed to interface the detector system with GSM system. An additional interface is developed to supervise the required info associated with the waste for numerous hand-picked locations.
Outputs (deliverables) of the project activities aligned with project purpose:	1. The use of sensors in providing information on waste generation in the smart bin can help reduce the operating costs of garbage collection work and reduce carbon emissions into the air as contractors only collect waste based on information from sensors. 2. Avoid the problem of overflow of rubbish out of the rubbish bin because rubbish is collected when the smart bin sensor sends the relevant information to the garbage collection contractor 3. Proper location tracking to help improve the efficiency of the garbage collection process 4. Solid waste generation data can be obtained and analyzed which in turn can assist in systematic solid waste management planning in the area.
SDG targets:	SDG 11 – Sustainable Cities and Communities SDG 3 – Good Health and Wellbeing SDG 9 – Industry, Innovation & Infrastructure SDG 13 – Climate Action SDG 17 – Partnership for the Goals
Intended Beneficiaries:	1. Local Council (DBKL) : Benefits in term of reducing the operating costs (collection of waste).

	2. Public : Benefits in term of able to have a more clean environment as the implementation may reduce the carbon emission because of the collection of waste only being done according to the capacity level of bin.
Main activities planned to achieve the outputs:	1. **Installation of more integrated smart bin through out the city centre areas.**
Baseline and target Indicators:	Baseline : The frequency of waste collected without using the smart bin is 2 times per day for 1 unit bin. Target Indicator : To reduce the number of collection to 30% from normal frequency collection and reduce the usage of plastic garbage used for bin.
Monitoring and Evaluation:	Monitoring is done based on the data recorded in the system -Refer attachment

PILOT PROJECT
SMART WASTE BIN SOLUTION

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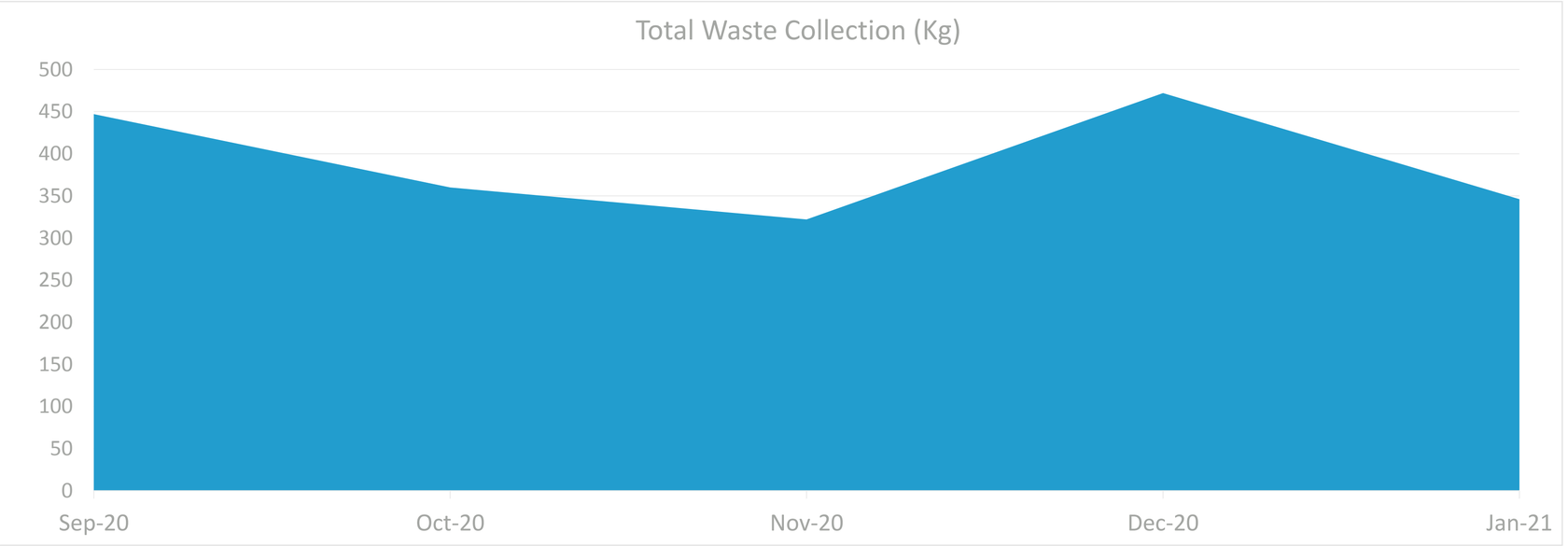
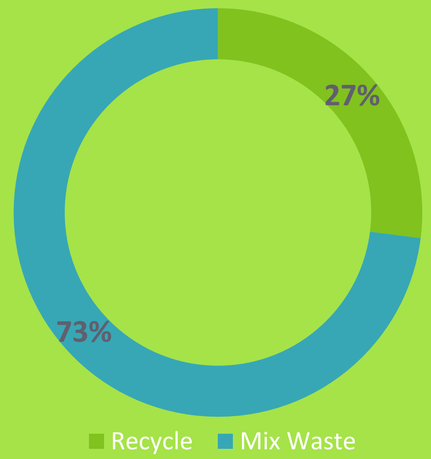
PROGRESS REPORT
SEPTEMBER 20 – JANUARY 21

DASHBOARD



RATIOS



TOTAL NUMBER OF PICKUP

440 TIMES

TOTAL GARBAGE COLLECTED (KG)

1,947 KG

TOTAL MIX WASTE

1,427 KG

TOTAL RECYCLE WASTE

520 KG

PROJECT DETAILS

10 units	Number of Smart Bin Deployed
Dataran Merdeka Area	Location of Deployment
Sept 20 – Jan 21	Duration

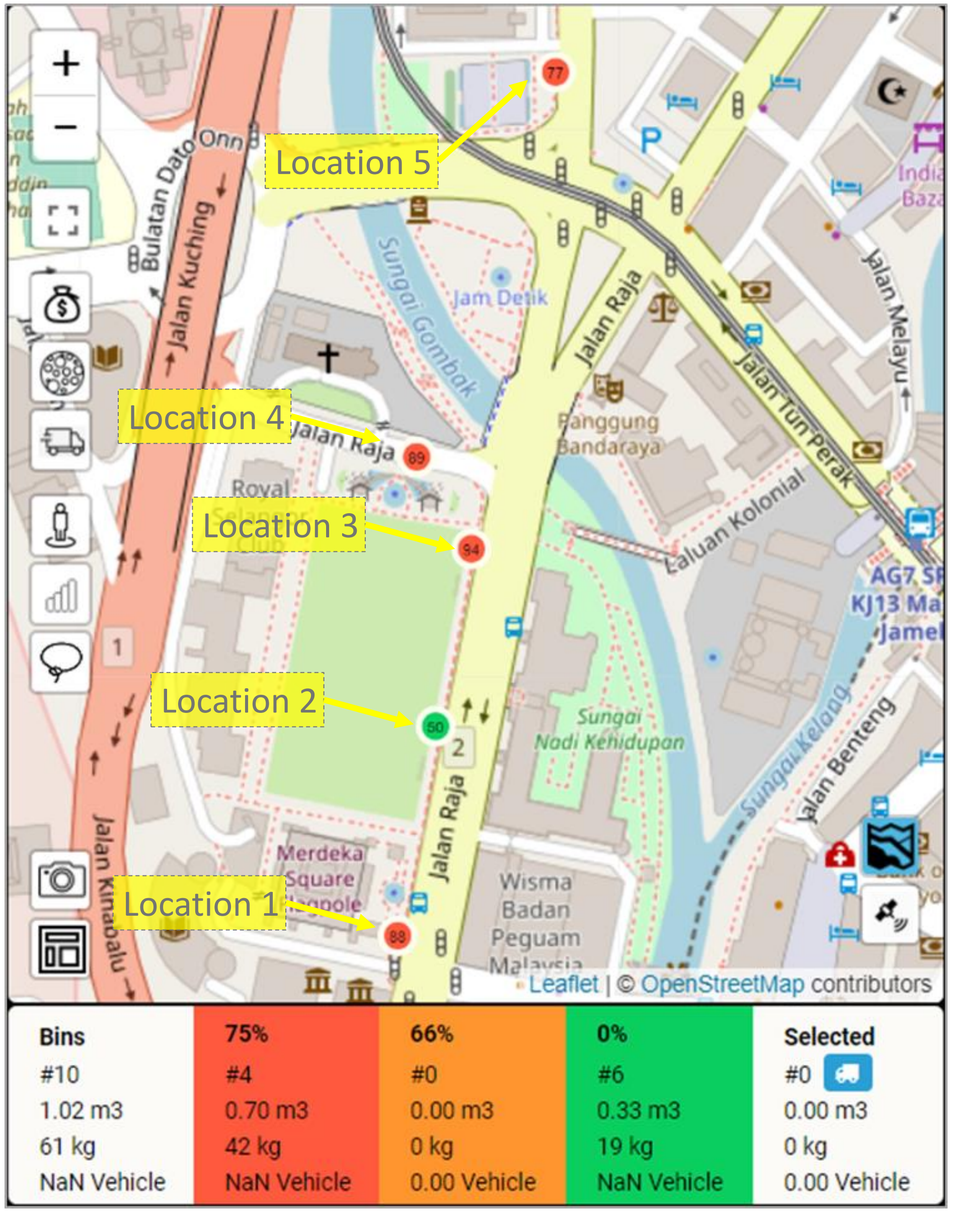
OTHER INFORMATION

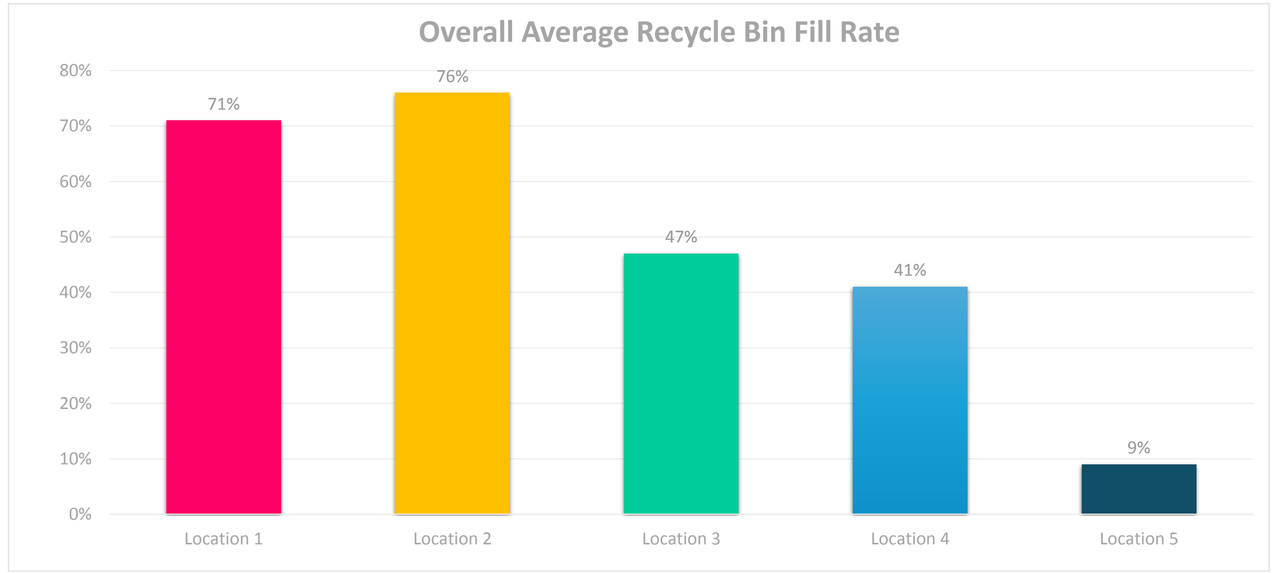
- The plastic bag inside the bin can affect the beam from the sensor which can lead to incorrect bin fill rate.
- There is the some inconsistency on the communication signal due to the fully covered metal enclosure.

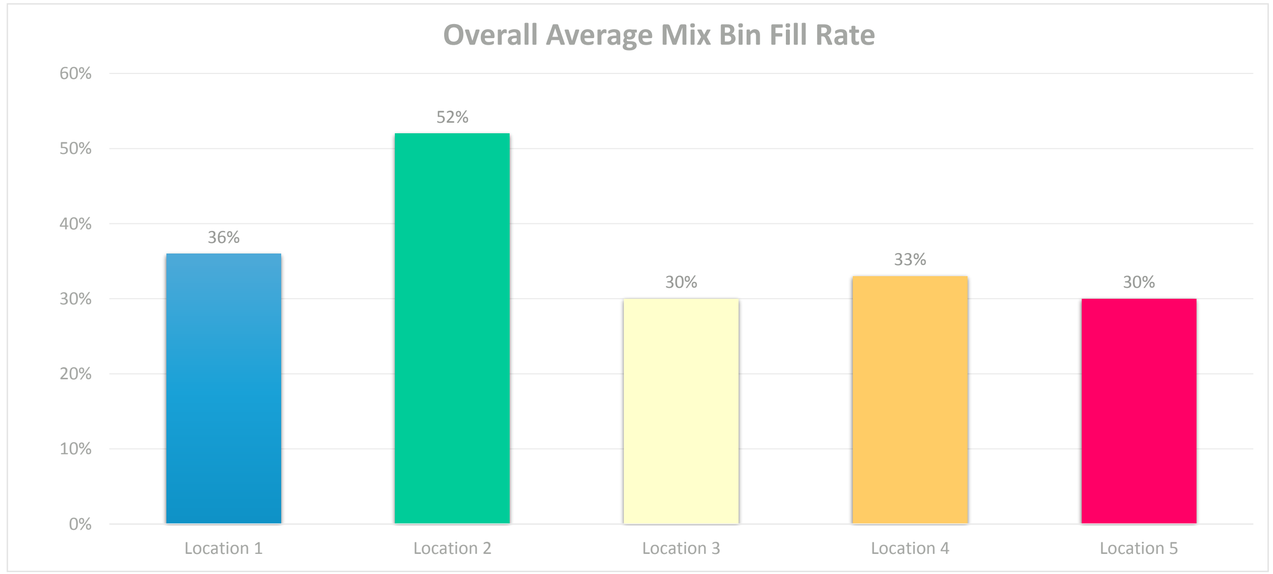
	WITHOUT USAGE OF SMART BIN	WITH USAGE OF SMART BIN
COLLECTION /PICK UP FREQUENCY FOR 10 BIN	2 times collection daily = 20 times daily	According to the capacity of bin
TOTAL NUMBER OF PICK UP FOR DURATION 20 SEPTEMBER 2020 – 21 JANUARY 2021 : 124 DAYS	10 unit bin : 20 x 124 = 2,480 times.	10 unit of bin : 440 times

REDUCTION OF NUMBER OF COLLECTION / PICK UP USING SMART BIN (%)	$\frac{(2{,}480 - 440)}{2{,}480} \times 100 = 82\%$

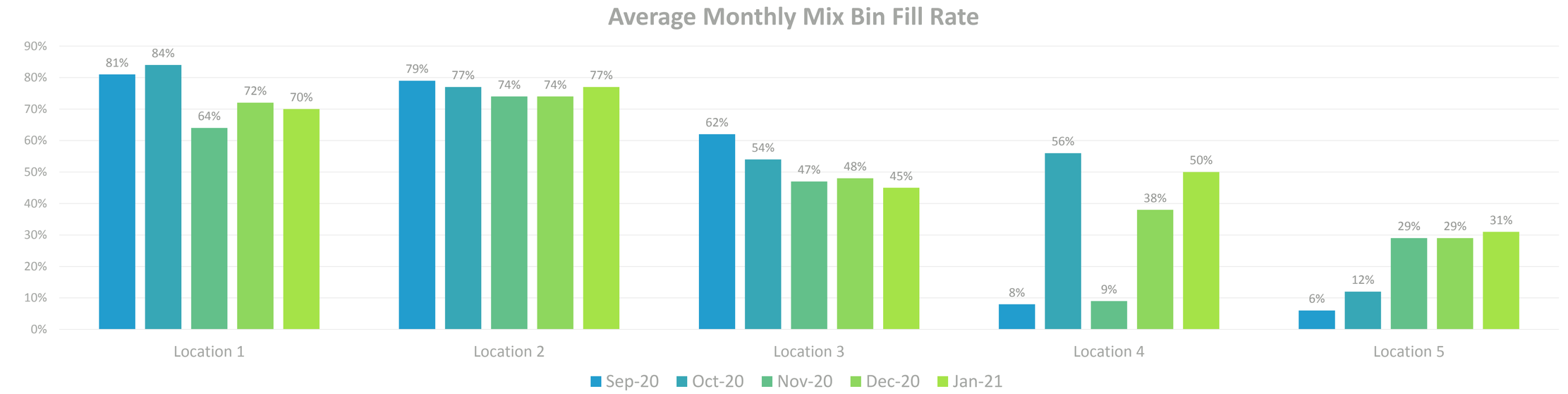
DASHBOARD

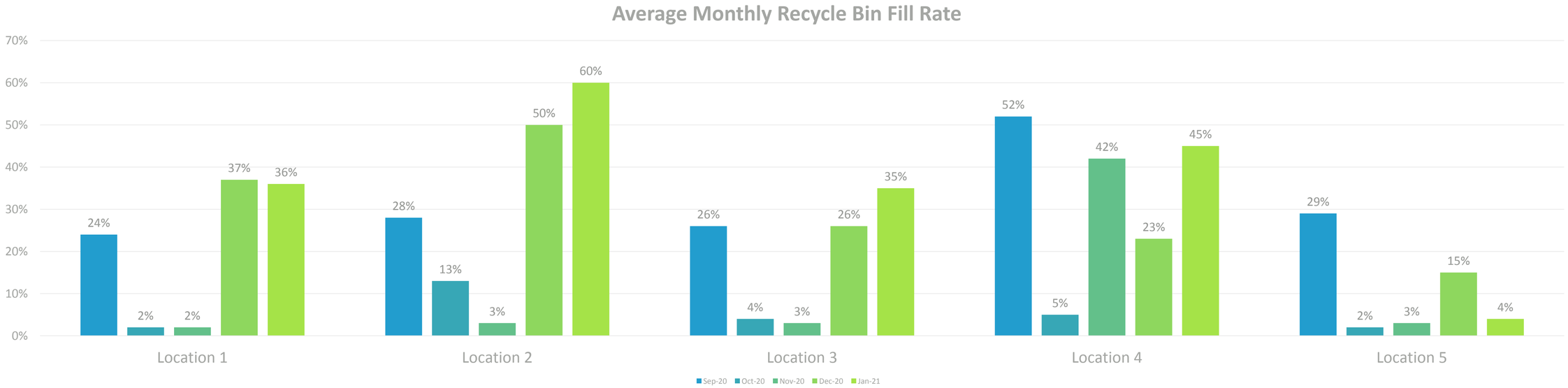

Location 5
Location 4
Location 3
Location 2
Location 1
Bulatan Dato Onn
Jalan Kuching
Sungai Gombak
Jam Detik
Jalan Raja
Jalan Tun Perak
Jalan Melayu
Panggung Bandaraya
Royal
Laluan Kolonial
Sungai Nadi Kehidupan
Sungai Kelang
Jalan Benteng
Merdeka Square
Wisma Badan Peguam Malaysia
Jalan Kinabalu
Leaflet | © OpenStreetMap contributors
Bins
#10
1.02 m3
61 kg
NaN Vehicle
75%
#4
0.70 m3
42 kg
NaN Vehicle
66%
#0
0.00 m3
0 kg
0.00 Vehicle
0%
#6
0.33 m3
19 kg
NaN Vehicle
Selected
#0
0.00 m3
0 kg
0.00 Vehicle


Overall Average Recycle Bin Fill Rate
80%
70%
60%
50%
40%
30%
20%
10%
0%
71%
76%
47%
41%
9%
Location 1
Location 2
Location 3
Location 4
Location 5


Overall Average Mix Bin Fill Rate
60%
50%
40%
30%
20%
10%
0%
36%
52%
30%
33%
30%
Location 1
Location 2
Location 3
Location 4
Location 5

DASHBOARD


Average Monthly Mix Bin Fill Rate
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
81%
84%
64%
72%
70%
79%
77%
74%
74%
77%
62%
54%
47%
48%
45%
8%
56%
9%
38%
50%
6%
12%
29%
29%
31%
Location 1
Location 2
Location 3
Location 4
Location 5
Sep-20
Oct-20
Nov-20
Dec-20
Jan-21


Average Monthly Recycle Bin Fill Rate
70%
60%
50%
40%
30%
20%
10%
0%
24%
2%
2%
37%
36%
28%
13%
3%
50%
60%
26%
4%
3%
26%
35%
52%
5%
42%
23%
45%
29%
2%
3%
15%
4%
Location 1
Location 2
Location 3
Location 4
Location 5
Sep-20
Oct-20
Nov-20
Dec-20
Jan-21

DASHBOARD

WMS Dashboard Analytics Monitoring Administration Azman Mashud (partner) en MY_DBKL

DASHBOARD Bins Routes Fleet Feedback Searching Data export Auto route Itinerary planning Clear filter

01/30/2021 Type: GENERAL Volume(m3): All Monitored: Yes

Bins	75%	66%	0%	Selected
#10	#3	#1	#6	#0
2.63 m3	1.38 m3	0.35 m3	0.90 m3	0.00 m3
28 kg	14 kg	4 kg	10 kg	0 kg
NaN Vehicle	NaN Vehicle	NaN Vehicle	NaN Vehicle	0.00 Vehicle

%	S	Stand	Street		S	Bin	%	kg	Type	Bin type	m3	Measured	Prediction	Route	Map	Graph	Feedback	Edit
72%	⊙	Location 2	Dataran Merdeka	☐	✔	LLC0006 (SS700027C3) (3F71AB)	93%	5	GENERAL	120L	0.50	1/30/2021	Full					
				☐	⊙	KSC0005 (SS700027BB) (3EBD79)	51%	3	GENERAL	120L	0.50	1/26/2021	N/A					
58%	⊙	Location 1	Dataran Merdeka	☐	⊙	LLC0003 (SS700027BA) (3EA9E7)	88%	4	GENERAL	120L	0.50	1/27/2021	Full					
				☐	✔	KSC0010 (SS70002129) (3F0BC7)	28%	1	GENERAL	120L	0.50	1/30/2021	1/31/2021					
54%	⊙	Location 3	Dataran Merdeka	☐	⊙	LLC0008 (SS700027E7) (3F117E)	95%	5	GENERAL	120L	0.50	1/26/2021	Full					
				☐	⊙	KSC0002 (SS700027DB) (3EF8D1)	12%	1	GENERAL	120L	0.50	1/29/2021	2/3/2021					
38%	⊙	Location 4	Dataran Merdeka	☐	⊙	LLC0007 (SS700027D7) (3EBD65)	65%	4	GENERAL	120L	0.60	1/25/2021	N/A					
				☐	✔	KSC0009 (SS70002121) (3F10CE)	11%	1	GENERAL	120L	0.50	1/30/2021	2/3/2021					
36%	✔	Location 5	Dataran Merdeka	☐	✔	LLC0001 (SS700027AC) (3EC266)	71%	4	GENERAL	120L	0.50	1/30/2021	1/30/2021					
				☐	✔	KSC0004 (SS700027C2) (3EB9A3)	0%	0	GENERAL	120L	0.50	1/30/2021	2/3/2021					

1. - 10 from 10