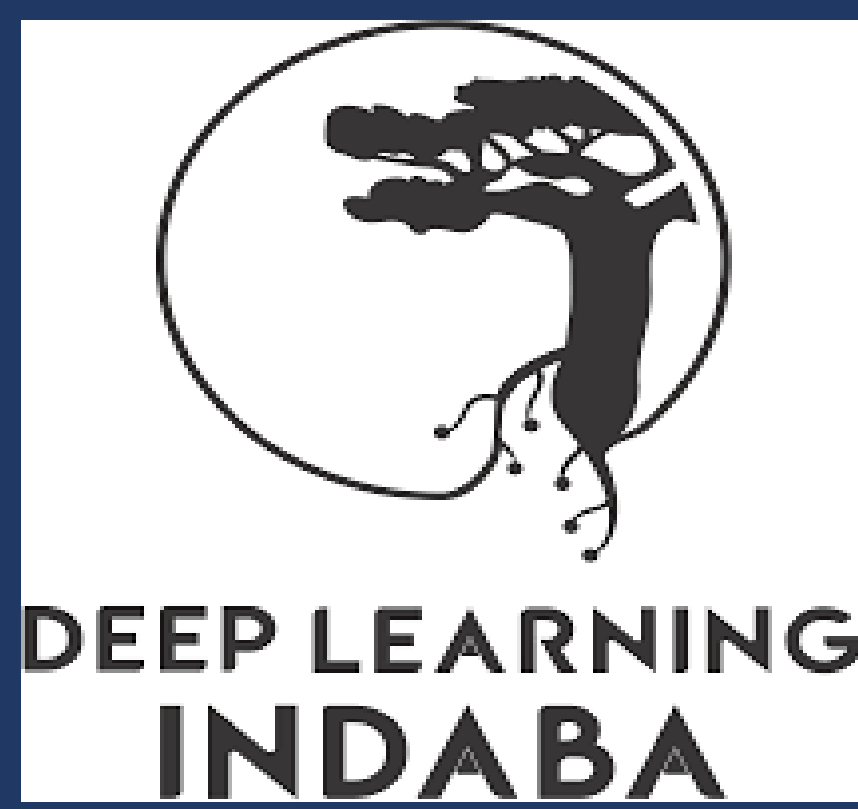




WASTE COLLECTION AND MANAGEMENT SYSTEM

DONGMO WANDJI Chelsie Carel ,AYOLO AYOLO Emmanuel Junior
National Advanced School of Engineering Yaounde
Thierry MINKA : Sr-Eng, Lecturer



INTRODUCTION

In view of rapid urbanization, increasing living standards and population growth, the number of waste in the world continues to increase. Their volume will reach 3.4 billion tons per year in 2050 according to the World Bank. According to the International Energy Agency, waste produces about 5% of greenhouse gases. In the city of Douala in particular, nearly 2500 tons of waste are produced each year and most litter the ground of the streets, often out of the bins scattered over kilometeric distances. Therefore, we will define a collection process better adapted to the current context and see to what extent artificial intelligence can play a significant role.



Trash Campus2 University of Douala

PROBLEMS

Most waste is poorly collected or not collected, which has many consequences including:

- Garbage overflows
- proliferation of diseases such as cholera and bacterial infections
- Intoxication due to waste decomposition wasted valuable resources
- Uncontrollable management costs

OBJECTIVE

The aim is to develop a waste collection system to improve the efficiency of collection in order to reduce the costs associated with waste management while protecting the environment as much as possible. Using the historical data provided by this system, it will be possible to generate optimized collection trajet for waste collection trucks but also to make forecasts on future descents.

METHODOLOGY

- Installation of sensors and micro-controllers on garbage cans
- Collection, storage and analysis of data provided by microcontrollers
- Use the results of the analysis to generate the most optimal path from a GIS
- Sends travel on mobile app to garbage collection trucks
- Getting off the trucks for collection following the optimal route relative to the place of deposit of the full bins

DESCRIPTION



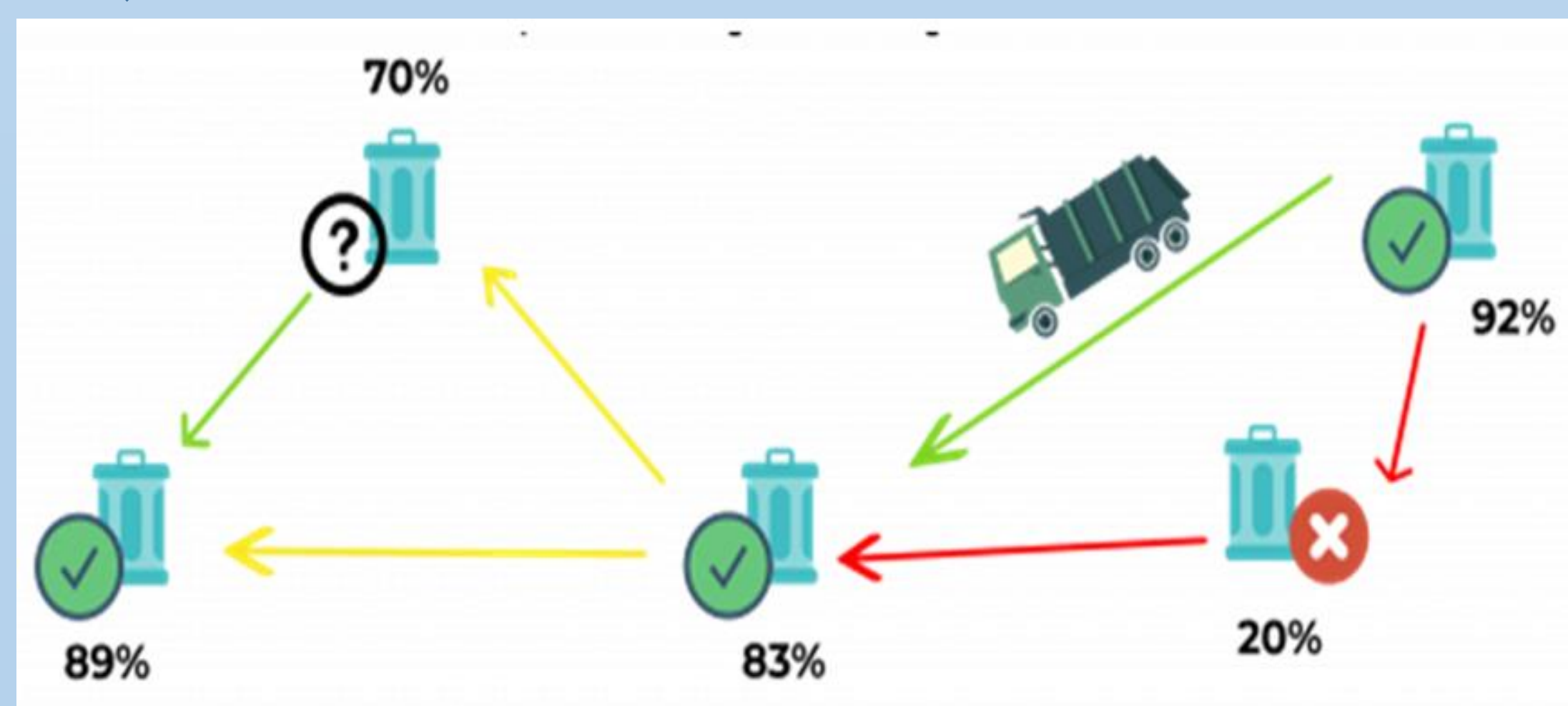
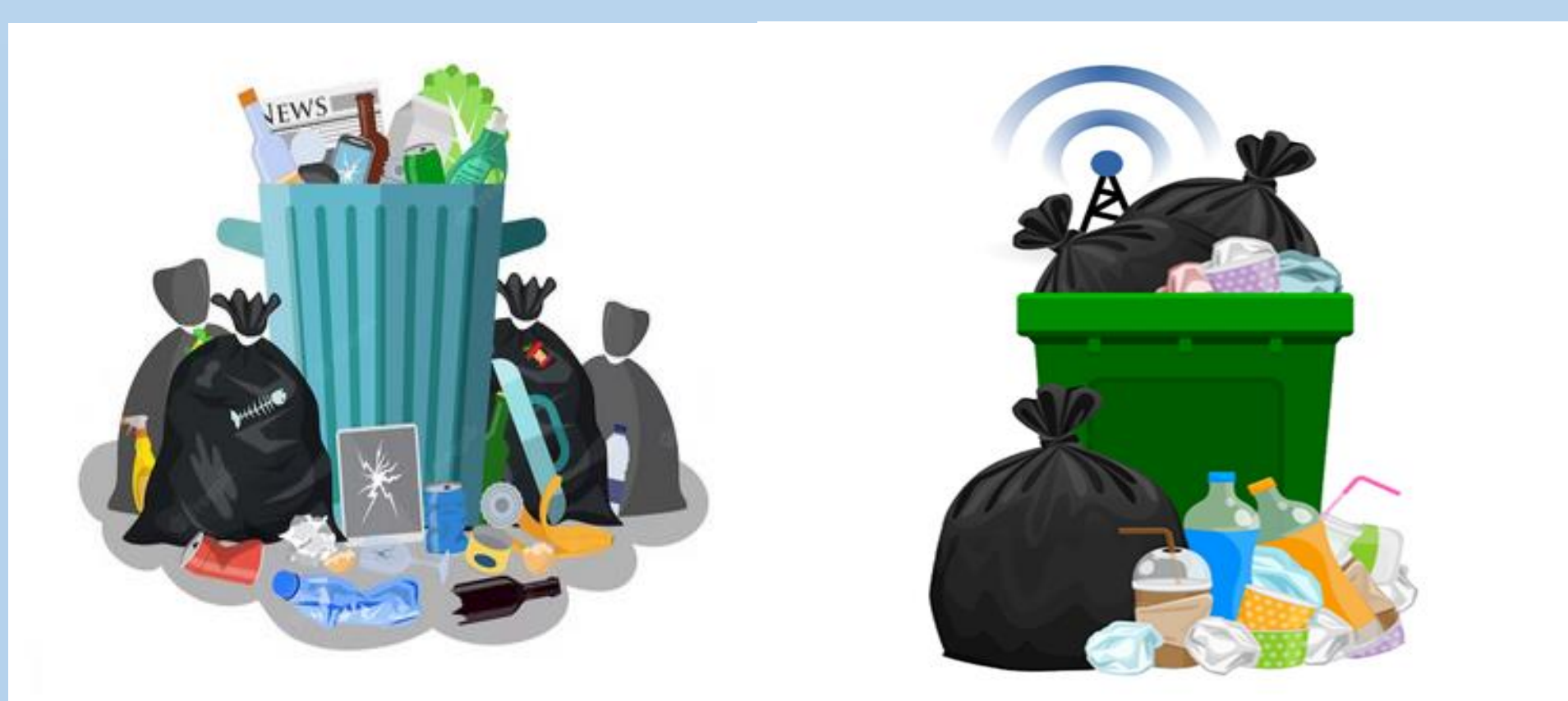
- The color codes on the mapping give the degree of filling of the bins.
- Analysis of information received from garbage cans
- Plotting the most optimal path by an algorithm
- Transmission of the path on the dashboard of the collection trucks.



- Sends a signal through full bins to the warehouse
- Red dots mark the critical fill level



- Reception of the trip by the driver
- Waste collection by following the route on the dashboard



CONCLUSION

- Reduced collection cost in terms of time and fuel
- Sustainable and environmentally-friendly development
- Improvement of people's living conditions
- Better decision-making thanks to the analysis of collected data



REFERENCES

- Household solid waste management put to the test of urban practices in Douala, TCHUIKOUA Louis Bernard, ELONG Joseph Gabriel
- Heywaste, waste container management - IoT Journey Orange UK <https://iotjourney.orange.com> > partners
- Geographic Information Systems by: TOUBAL Abderrezak Kamel. Lecturer Class B