Flowchart

Start

→ LCD display waste bin status

→ IR sensor monitors the proximity of user

→ Ultra sonic sensor monitors the level of waste in the bin compartment

check if anybody close to the bin with 5 to 10 cm?
- No → Bin Lid remain closed
- Yes → Open Lid

→ Preparation of AI camera stationed and ready for waste image acquisition

→ Input captured waste image to system

→ Compare the waste image with pre trained model using Deep Learning (CNN)

Is the waste image valid?
- No → Check and refine the accuracy level of waste image using supporting sensors
- Yes → Send a command to motor which drives the designated waste compartment then opens up for the waste to fall into the biodegradable and non biodegradable designated waste compartment labeled A,B,C,D,E,F

valid waste type?
- No → Check image again for accuracy level
- Yes → (Send a command to motor...)

→ Waste sorted in designated compartment

→ **IoT Module activates**

gives real time information of the weight, gaseous state, humidity and measures level of waste in the bin compartments

→ **Level, Humidity, Weight and Gas Sensors**

Send notification

→ **Notifcation to end user**

Gps/Google map integration

→ **GPS/Google map for shortest possible route**

→ **End**

Handwritten annotations

● → full
● → almost full (half way)
● → empty or low level

RGB → LED indicators

→ No need!
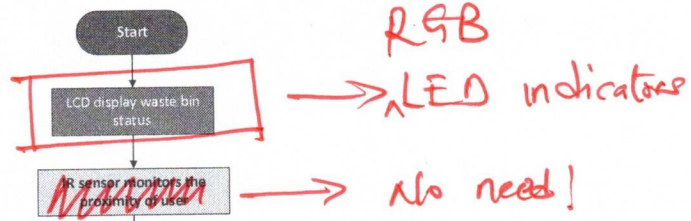
All these would be replaced by a simple push to open mechanism.
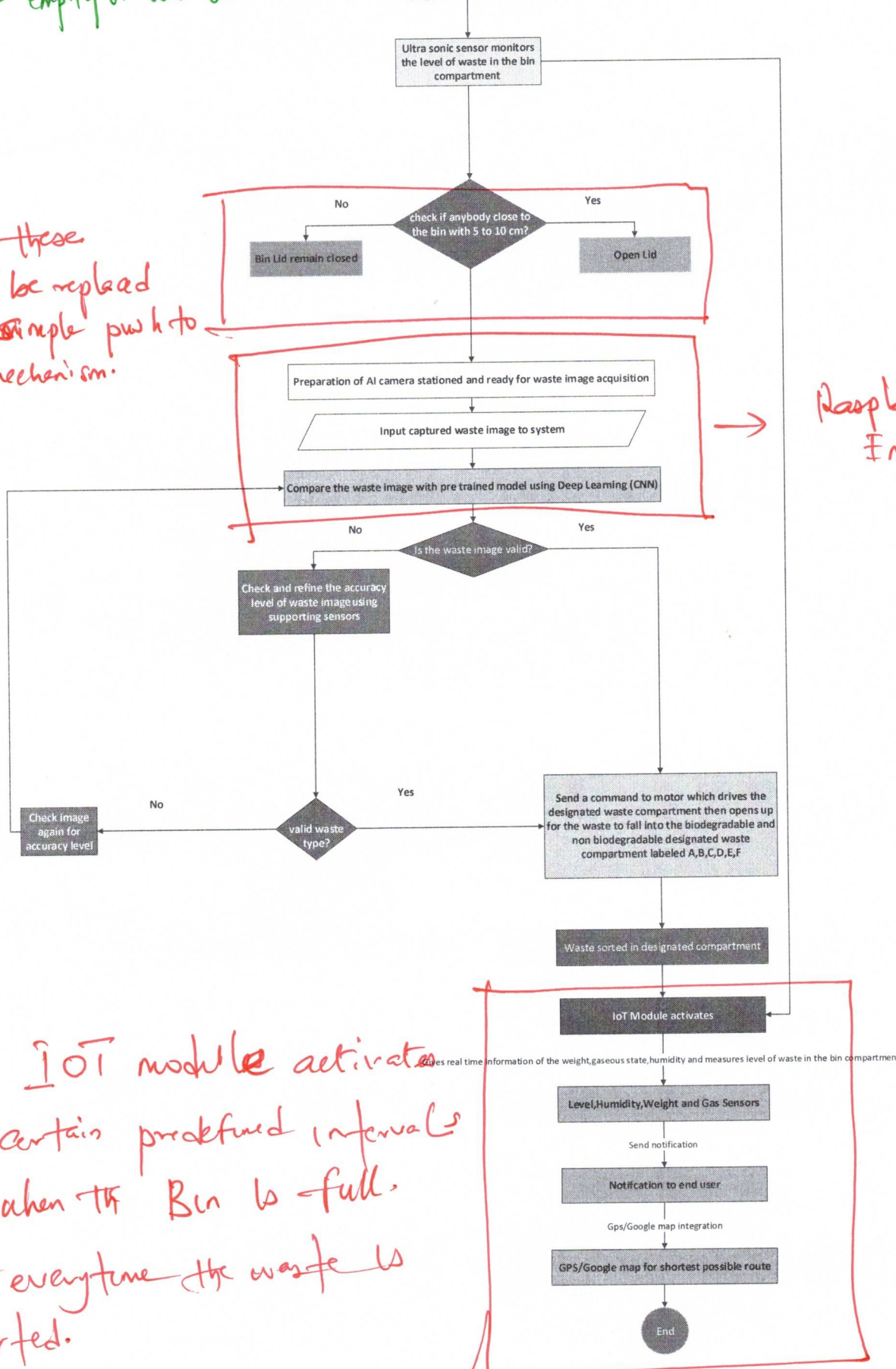
Raspberry Pi Engine

IOT module activates @ certain predefined intervals or when the Bin is full. Not everytime the waste is sorted.

Structural → 3D printing

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Circuit and Mechanical Control implementation

Testing

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Raspberry Pie Programming → Neural Engine

Testing

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IOT Data Acquisition

Testing

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Full System Integration

Testing

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Final Deployment.