CHAPTER 3
RESEARCH METHODOLOGY

In making this project, it takes several steps such as preparing software,, testing sensors and hardware, the Arduino program, making a prototype container, and try to sending SMS to handphone as a notification.

3.1   Preparing Software

Before we test the sensors, we need to prepare the software. Arduino IDE software is used as software that contains coding for compiling and running sensors and building this project.

3.2   Testing Sensors and Hardware

The sensors used in building this project are the ultrasonic sensor and the Obstacle IR sensor which are run using the Arduino IDE. GSM SIM 800L module, Servo Motor and step down converter.

3.3   Preparing Programs

After completing testing all the sensors and some hardware needed, the merging of the entire program from each sensor program and each hardware device that is used as a mechanism is made into 1 program

3.4   Making a Prototype Container

After the program is set up, it is now for making prototype containers. By using a plastic trash can as a container and make 2 holes in the front for the ultrasonic sensor placement sensor and the back of the trash for the Obstacle IR sensor. To close the trash can use fine fibers to facilitate the opening and closing mechanism that is driven by a servo motor. Placement of the GSM module, antenna module, Breadboard and Step Down Buck Converter is at the bottom of the trash.

3.5   **Try to sending SMS to Handphone**

To send the notification of the trash through the GSM SIM 800L module to the cellphone, a SIM card and pulse network is required. An SMS will be sent when the contents of the trash are full and the IR Obstacle sensor continues and incoming SMS messages on mobile phones in the form of text messages that have been set in the Arduino IDE program..