

CHAPTER III

RESEARCH METHODOLOGY

The writer completes this project through the steps as follows:

1. Preparing the devices.

The writer prepares the devices to making this project. The devices needed in this project are nodeMCU, HC-SR04 sensor, micro servo SG90, micro SD module, micro SD, breadboard, male-female cable, and a bottle to a fish feed can.

2. Creating the programs and searching the IoT server.

The writer tries the first programs to check the devices. It is started from nodeMCU, HC-SR04 sensor, micro servo SG90, micro SD module. After all the devices run well, the writer makes the program to complete the project "Automatically Feeding Fish using IoT". The program begins with the writer sets the time in a txt file format and sets the schedule to open and to close the fish feed can in a txt file format. After that measure the water level and calculate the volume of the fish feed can using the HC-SR04 sensor. Finally, the volume and the water level will be sent to the IoT server (www.thingspeak.com) and then save in txt file on computer via XAMPP. But before sending the data to the IoT server, the writer searches an appropriate IoT server in making the project.

3. Assembling the devices.

The writer starts this project by linking the devices one by one using male-female cable. The writer uses a bottle as the fish feed can. The bottle cut in the top to insert the fish feed. On the top of the bottle was placed HC-SR04 to calculating the volume of fish feed. On the side of the bottom, the bottle was cut to the door of the fish feed can. After that the micro servo SG90 placed in there to open and to close the door of the fish feed can. To measure the water level, HC-SR04 placed on the top of the aquarium.