CHAPTER 3
RESEARCH METHODOLOGY

1. Tools and sensors needed

   a. Arduino UNO

   b. HC-SR04

   c. Servo

   d. Jumper

   e. PCB

   f. Mini BreadBoard

   g. Adaptor 5volt

   h. RTC

   i. LED

   j. Buzzer

2. Design & Implementation

Data collection regarding scheduling of fish feeding, as well as dosage / weight of feed given, was obtained through a survey to the location of tilapia cultivation. As well as gathering journals from various sources on topics related to this project. The website is attached to the bibliography section

The first step is designing an automatic fish feeder. The design is in the form of a rectangular prism and is divided into several parts, including the top, the middle and the bottom.

The upper part has several functions, the first function is where fish feed is located, the second function is where the valve / exit door for fish food is driven by a servo motor and the third function is checking the availability of fish feed

divided into several levels, this detection process carried out by ultrasonic sensors (HC-SR04).

The second part is the controller part of the automatic fish feed tool, there is an Arduino, RTC module, PCB and its wiring. The third part has various functions, the first as a function of throwing fish feed towards the pond which is driven by a servo motor, the second function is to place the monitor and control the feed dosage given, shown by the LCD module which describes the time and weight of the feed coming out. Control of the feed dose is regulated using a variable resistor / potentio.

The second step is collecting data and measuring the weight of fish feed out based on the delay value given to the servo, the measurement process uses a gram balance, so it can be concluded that the delay effect on the servo on the weight of the fish feed out. 10 experiments were performed on each delay value for the accuracy of the data, then the data was recorded and used as a reference in determining the dose of fish feeding.

3. Testing

Testing is done to test the accuracy of the weight of fish feed that comes out and the accuracy of the tools in automatic fish feed scheduling.