CHAPTER 1
INTRODUCTION

1.1 Background

Hydroponic is one of growing plant method without soil. It use water as the planting media. Curently, hydroponic method is being popular in Indonesia because it is higienic, get more crops, environmentally friendly and low cost production. Hydroponic plant is depends on the nutrients in the water. One of the most important of the hydroponic method is pH level of the water, because nutrient absorb is by water media. The standard of pH level which used to grow a plant is in the range of 5.5 to 6.5.

To balancing the standard of pH level, pH up liquid and pH down liquid will be needed. But it is dificult to measure the pH level on the standard range while adding the water. It would be very helpfull if there is a device that can keep the pH level in the desired range and can be monitored by android devices or computer, because plant need a stable pH level. Based on this problem, this project will be developed automated device for mixing pH up and pH down liqud so the level of pH will be keep in the desire range using pH sensor and Arduino microcontroller.

A pH sensor is an electronic device that can measure pH level. The arduino microcontroller will send data of pH level into the thingspeak IoT server, and then send to android application which is used to monitoring the pH level. After data send to the android, the user can see the pH level. If pH level is under the range, the arduino will drain the pH up liquid, and vice versa until the pH level is in the range.

1.2 Scope

After discuss the problems that appears above, the project will be cover some topic which mention below :

1. How to measure pH level with pH sensor.
2. How to control pH level in certain level by control the drain of pH up and pH down liquids.
3. How to conect the arduino to thingspeak and then forward the data to the android device.
4. How users can monitoring pH level on android device.

1.3 Objective

The purpose of the project is to create the pH level control using arduino which conected to thingspeak IoT server. This project will help the hydroponic farmer to control the pH balance using android. The another purpose is, to improve the quality of hydroponic plant.