

## 1. Introduction

Eggs are a good source of protein containing high amount of iron and lime. Egg yolks provide fat-soluble vitamins. Eggs taste delicious, are easily digested and have high nutrition. In addition, eggs are easy to get anywhere and have a relatively cheap price. Eggs are also widely used by people for side dishes, cakes and others [1]. Nevertheless eggs can experience a decrease in quality because they are influenced by microbes, physical damage, evaporation of water and gases such as carbon dioxide, ammonia, nitrogen and hydrogen sulfide from the egg. The longer the egg is stored, the evaporation will make the egg not good or rotten. Can be seen from the yolk index, albumen index and egg pH by ( $P < 0.5$ ) [2] [3] [4].

Eggs that are sold are not necessarily good quality because they are too long to store eggs and the storage process is not in accordance with the place. eggs sorting is done by looking into the sun or with a flashlight, using manual methods for eggs sorting had very long time process and the results can not to be accurate because many factors that affect the eggs sorting such as poor vision, with the number of eggs which is not a few to do checking manually. If the egg is overlaid with the sun or with a flashlight is bright, the condition is still good, if it does not look bright or dark, the egg is not good because it is contained in the egg which inhibits lighting like a mature egg [2] [5] [6].

One of the emerging technologies, which is a trend currently, that is the Internet of Things (IoT). Literally, this technology will connect everything through the Internet. Some applications have been developed based on IoT platforms such as [7] [8] [9]. In the same way, IoT can be a solution for sending data from the field to the server via the Internet realtime or there is no delay in sending data [10]. By using IoT technology, detecting eggs can be monitored by using a smart phone over long distances or not be at the location of egg checking [11]. To see the results of how many eggs are good and how many eggs are rotten, the solution needed is to design a system to determine or detect eggs that are good or rotten by applying the Fuzzy Logic method.

Fuzzy logic is a logic that has a value of obscurity or similarity between right or wrong. In classical logic it can be expressed in binary (0 or 1, yes or no). In making a device that can detect eggs which are good or not by using the Fuzzy Logic method, to read process from light sensors and heavy sensors. The value has been obtained will be distributed or separate good eggs or poor eggs [12] [13] [14]. Fuzzy logic that is used by mamdani, application function application uses MIN-MAX. The output generated from the output has been processed through the sensor as input. Output inference is a fuzzy number which is determined from the value of a particular craps as output [15] [16].

The egg quality detection system uses a NodeMCU microcontroller equipped with an LDR sensor and loadcell weight sensor. The LDR sensor or light sensor that affects light will decrease its resistance and vice versa if there is no light entering or regarding the LDR sensor then the resistance rises or is high [17]. Whereas for loadcell sensors for pressure or force can measure of changes that affect the strain as electrical signals, because effective changes occur at the electrical wire resistance load. A loadcell will give the output voltage of the change in resistance that occurs due to a change in the position of the load buffer, so that the change must be entered into the amplifier [18]. Based on the background, there are identification problems such as how to implement a smart egg quality detection system and how to analyze the fuzzy logic performance system in detecting egg quality. In identifying problems that have been explained, that there are limitations to the problem in research such as the design of the tool. Tests on the egg quality detection system are carried out on the prototype. In addition, the test uses only chicken eggs. The findings of this paper are processes using fuzzy logic which functions in determining decisions by utilizing data from sensors.