ABSTRACT

Aquaponics is a combination of hydroponic and aquaculture activities that produce a positive symbiosis or mutual benefit. Hydroponics is the cultivation of plants without using soil media, which means that this farming process uses water and without utilizing planting media in the form of soil or soil, while aquaculture is the cultivation of production or maintenance of fish and similar aquatic animals. This study aims to determine the comparison of filter media in aquaponic systems with aquaponic systems without filters. This research uses an esp32 chip microcontroller and pH and TSS (Total Suspended Solid) sensors. These sensors are used to get the nutrient parameters taken and these output values will be displayed via Wi-Fi intermediary. Dissolved solids are measured collectively using a TSS sensor and the alkaline/acidic condition of the pond is measured using a pH sensor. From the sensor calibration results, the error value for the pH sensor is 2.55% and for TSS is 2.43%. The water characteristics obtained by the unfiltered pond have an average TSS value of 1537.25 NTU, while the water conditions in the unfiltered pond tend to be acidic with an average pH value of 5.81.

Keywords: Aquaponics, Biofilter, IoT (Internet of Thing).