ABSTRACT

The need for hot water is currently getting higher. Hot water is needed by the wider community, for example for bathing water or washing fatty items where it is easier to dissolve it in soap using hot water than cold water. Not only household consumers who need hot water, but also hospitals, industry, hotels and for water supply in swimming pools. One of the renewable energy that is abundantly available is solar radiation energy. About half of the incoming solar energy reaches the earth's surface. Earth receives 174 map watts (PW) of incoming solar radiation in the upper atmosphere. The swimming pool at Telkom University is often empty of visitors. One of the causes is too cold water temperature in the swimming pool at Telkom University. The average water temperature in swimming pools is generally 22°-24°C. The temperature in the swimming pool at Telkom University is always lower than the average swimming pool in general. Therefore the authors conducted this research so that students are comfortable swimming in Telkom University swimming pools.

Generally, water heaters are commonly found in aquariums, bathrooms, and fish ponds. Actually, this tool has been produced by WIKA WH company, but the price of the tool is very expensive. The advantage of this research tool is that the price will be much cheaper and of almost the same quality.

In this final project, a prototypecontrol system is designed for a swimming pool heating system with solar energy at the Tokong Nanas Building, Telkom University, to regulate the water temperature in the prototype container at any temperature <35°C in real time. Comparison of the prototype with the original swimming pool is 1:20. Data processed from the DS18B20 sensorreadings.

Keywords: *Hot Water, Swimming Pool, Control, Solar Panel*