

ABSTRACT

Thrombocyte must be stored in the certain temperature (20 - 24 °C) to avoid being damaged with one hour tolerance without agitation. Conventional cooler that used for transferring blood pack still using ice pack. Usually, the conventional cooler didn't come with temperature control. If the temperature goes up, the user should add the ice pack. That's the reason why we build a cooler pack with *Peltier Thermoelectric Cooler* (TEC) as the cooling system.

In this final project, we build a system that could control the temperature with 20 - 24 °C as a default. Fuzzy Logic is used for the control system and the control method. The sensor we used for this project is MLX 90615 and DS18B20, and both of the sensor is used for measuring the temperature. MLX 90615 is used for the cooling box, and DS18B20 will be measuring the blood pack. From the set point that has been pointed, the user don't have to add the ice pack. Because Peltier TEC will be the one who is cooling the box.

The result of this final project, is a fuzzy logic control that could control the temperature on the Peltier TEC with the help of *Electronic Speed Control* (ESC) to control the current. This theory is proved by the cooler box that we build. The temperature of the box could stabilized at 22 °C in 17 minutes with the low damaged rate on the thrombocyte (4.103/uL)

Keywords: Blood, Thrombocyte Concentrate (TC), Thermoelectric Couple (TEC), Peltier, Thermal Control System, Fuzzy Logic.