ABSTRACT

Water is the most important aspect in planet earth, even the first ever microorganism wascreated by the Mother Nature million years ago in water. Humans being and all living creatures are very dependent to water source because water is essential to maintain our daily life. In fact, there is only 2% of water in earth is safe to consume which is mostly from rivers. Mass developments in technologies and industrials have made a deep impact on emitting a large amount of green house gases. Global warming and water pollution has causes rapid rise of global temperature in the rate of 0.17°C per decade and directly affects the water temperature of oceans, rivers, lakes and glacial [1] .Thus, water temperature remote terminal unit is suitable for sensing water temperature of the rivers or lake for monitoring the level of temperature change relative to the water quality that has been affected by the increase of water temperature.

The main objective of this project is to design a wireless water temperature measuring remote terminal unit. This is an unmanned device that can be installed at rivers or lake for monitoring purpose and transmits the signal to a base station wirelessly. The communication devices is operate in Amplitude Shift Keying (ASK) and able to transmit the signal within a specific range of the device used.

The prototype is built accordance to the project specifications which consists of PIC microcontroller, LCD module, sensors, LED, RF modules, encoder, decoder and buzzer. PIC microcontroller is used to read the analogue output of the sensor and execute the command to determine whether the water temperature is within a specific margin, convert and display the temperature on LCD module. It also controls the activation of the RF module. Different LED lights at receiver indicate a few range of water temperature. Buzzer will sound if the temperature goes above the margin. Some data will be collected for simple analysis on the effect of water temperature against the water quality. The overall design is met and proven by the results obtained in testing and troubleshooting. An additional feature of real time clock (RTC) can be added as a future development, it can show the actual time and date and can be a part of data logging for obtaining more information about the data collected.