

## ABSTRACT

*Ultrasonic cleaning is process that using ultrasonic waveform with water as the mediator to cleaning items (for example : medical instruments (surgery instrument, dental instrument and other instruments that have small size), optic, jewelry, wristwatch, etc), can also use generally water. The principle of ultrasonic cleaner is changes the electric power to vibration. This vibration are propagated into liquid media to stuff in that media.*

*This modul is completed with heater, so the dirt on the sidelines that is difficult to reach by vibration will be lost. Heater is an object that can spread heat or else to reach the higher heat. The principle of heater is working together with temperature sensor, so the result is more efficient. Temperature sensor is component that used to monitor the temperature at the moment.*

*Measurement result of frequency has an error of 16.675%, measurement result of timer at 5 minutes has an error of 0.3%, measurement result of timer at 10 minutes has an error of 0.167%, measurement result of temperature at 30<sup>0</sup>C has an error of 0.54%, measurement result of temperature at 40<sup>0</sup>C has an error of 0.19375%, measurement result of temperature at 50<sup>0</sup>C has an error of 2.575%, measurement result of temperature at 60<sup>0</sup>C has an error of 4.55%.*

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**Key Words : Ultrasonic Cleaner, Heater, Mikrokontroller**