

## **ABSTRACT**

Betel lime water is water with high calcium level. Water can be considered as betel lime water if it contains 120 mg/l of calcium. Consuming water with high calcium and high intensity can cause kidney disease. In addition, water with high calcium can harm the industry, since the calcium in water can cause the sedimentation in water taps. And this water can cause the soap to be foamless.

This final project realized detector equipment of water hardness based on microcontroller. This equipment uses the principle that the pure water has high resistance and decreases as the amount of calcium in the water. The parallel pieces of metal from the silver material is used as the detector of the resistance change. The voltage which comes out from this parallel pieces of metal then becoming the input for ADC. The calculation uses ATmega 8535 microcontroller and the result is displayed on LCD. And then, the result is displayed on LCD are calcium level calculation on ppm and water condition. By realization of this final project, it is expected that the daily water problem is possible to reduce.

Key word : calcium level, ATmega 8535 microcontroller, LCD, Hardness of water