ABSTRACT

Ammunition is a propellant and projectile, or broadly anything that can be used in combat. In modern projectile, MEMS *(Microelectromechanical System)* technology is already intregated and it is used to increase the performance of the projectile. But MEMS technology is only used in large caliber projectile because of the number of spaces that is available so that the MEMS is more protected from high temperature that is happening at the discharging process. To measure the temperature distribution in the projectile at the discharging process is a difficult process. Because of the high temperature at the internal ballistics dan the high speed of the projectile at external ballistics.

One of the numerical methode that can be used in solving temperature distribution is the finite element methode. This methode is cappable to solve problem with complex geometry, so this methode is more supperior from other methode. In this final project, finite element methode is used for two dimension temperature distribution for obtaining distribution and history of the temperature in the projectile with 5 scenario. From the distribution and history of the temperature will prove if it is possible to implement MEMS in ther projectile in small caliber projectile in external ballistics phase.

The result of the simulation shows that MEMS is able to be implemented anywhere in the projectile except in the surface of the projectile. Increasing the material conductivity is an influential parameter in projectile temperature distribution and external convection is not an influencial parameter in projectile temperature distribution.

Keyword: *Microelectromechanical System*, Finite Element Methode, *Exterior Ballistics*, Heat Conduction.