ABSTRACT

This thesis attempts to demonstrate that the analog computer has not outlived its usefulness. This study develops a simulation system, which simulates like an analog computer for solving the systems of linear and non-linear differential equations. The physical application can be modeled as an analog computer within the system in terms of block diagrams. The analog computer can be setup by connecting its components such as integrator, summer, multiplier etc and the system will simulate the reaction of that analog computer. For the differential equations, two numerical methods: Euler and 4^{th} Order Runge-Kutta method are used to solve. Then the output solutions will be shown on a graph. To obtain the output function of that physical system, the graphical output can be analyzed by using several regression methods. Many of the physical applications are much better suited with analog computer than their digital counterparts.