Abstract

Needs of data storage and bandwidth requirements causing the need for compression system which can compress data thus the space of data storage or bandwidth usage can be optimized. One method of data compression is *Arithmetic Coding*. *Arithmetic Coding* is a technique to compress the data based on entropy or probability of data or symbol that are read. *Arithmetic Coding* requires modeler that is used to providing probability distributions of symbol to be encoded. Prediction by Partial Matching is a modeler that provides distribution probability based on context, or also known as context modeling.

In this final project will be implemented *Arithmetic Coding* compression systems using *Prediction by Partial Matching* on text files and also will be implemented compression system using *Zero Order* model that is used as a comparative to the increase in peformance.

After using objective measurement, finally conclude that *Arithmetic Coding* compression systems generate PPM better ratio nearly half of the compression ratio using a *Zero Order Arithmetic Coding* about 48.32%, but for average of duration has increased (over time) by 132.87 %, and for the average speed decreased by 84.70% compared to Arithmetic Coding using model Zer Order.

Keywords: *Text Compression, Arithmetic Coding, Prediction by Partial Matching, Zero Order, Context Modeling*.