ABSTRACT

The economy is the foundation of a country. Once an economic crisis occurs many sectors will be hugely impacted. The economic crisis that happened from 1997 to 1998 in Indonesia motivated the researchers to delve into the economic crisis prediction system. Meanwhile, the economy which comes from the words" ecos" and "nomos", consists of the values of life that can be used as economic indicators. Thus, in this study, economic indicators are used to predict the possibility of a crisis. The economic indicators used in this thesis are Gross Domestic Product (GDP), inflation, population, and oil import per year from 1980 to 2011. These indicators have been tested using time series analysis and system dynamics and then optimized by a genetic algorithm. The result of this research had an accuracy of around $93\% - 99\%$ in the training phase and up to 90% accuracy in the testing phase. Those results proved that the prediction system can fit data in finding a historical pattern with small errors. The errors in this system were mainly caused by the limited total data used, i.e., 32 data. The other reason is due to the inherent uncertainty of the economy where economic science is a chaotic and complex system disallowing the error to be fully eliminated.

Keywords: prediction system, economic crisis, system dynamic, time series analysis, genetic algorithm.