

AN INTELLIGENT SYSTEM TO PREDICT THE STOCK INDICES OF THE COLOMBO STOCK EXCHANGE

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A mechanism to predict accurately the future movement of the stock indices is of utmost importance to investors on the Colombo Stock Exchange. This would enable reasonably consistent profit making, by being a guideline for making buying and selling decisions of the stocks. From an investor's perspective a forecast or an alarm signaling the significant turning points coming up ahead within the next few days would be of importance to make quick short term decisions.

The objective of the study is to use Artificial Neural Networks to forecast the primary stock indices of the Colombo Stock Exchange. As it was established that the changes in Milanka Price Index and All share price index (ASPI) were similar on most occasions, the system is built to predict the more volatile Milanka Price Index in the short run. So that when the system is fed with a particular day's data it would predict the direction and the percentage change in the Milanka Price Index on the same weekday in the following week. For instance, when the system is fed with last Fridays data it would be capable of predicting the movement on the coming Friday.

The objective has been fulfilled by using a three layer feed foreword perceptron neural network architecture, which is trained using the back propagation algorithm. The system is designed to predict significant changes only, where significant change was established to be at least one percentage change in the Milanka Price Index from the previous day's value.

This neural network standalone system implemented on top of Java Object Oriented Neural Engine Framework can be executed on any computer or device with Java Runtime Environment installed in it. It is also capable of utilizing multiprocessor architecture during the training of the neural network.

The system was tested on the data obtained for the year 2004 and it was found that it could be used to predict the direction of the change and also the significant turning points of the Milanka Price Index in the short run. Another important conclusion that could be derived from this study is that the Artificial Neural Networks could be used to predict the Colombo Stock Exchange when properly trained and designed.