Abstract

On the investing world, holdings/stock is one of the most popular financial market instruments because of it benefits to get better profits rather than other conventional instruments such as deposits or gold. The profits comes from dividends (profits from the distribution of company profits) and capital gains (profits on the sale value of the excess value of shares).Basically in the stock market, the price of a stock can change rapidly over time and the investor must decide when the stock should be sold or retained. Because of that we need a system that can give prediction of the stock price to help investors in taking the right action so that the risk can be minimalized.

In this final project , a software will be built to predict stock price movements using technical analysis which implemented using *Support Vector Regression* (SVR) and *Firefly Algorithm* (FA). SVR is a regression method which developed from Support Vector Machine and able to overcome the overfitting and demonstrate a good performance. However, SVR have weakness in determining parameter value that fits for it. To overcome the weakness, *Firefly Algorithm* (FA) is used to determine the optimal value for SVR parameters.

By using the dataset from *finance.yahoo.com* , which is four *bluechip* stock price from period 2010-2014, this final project gets a result that shows that SVR and FA algorithm can be applied in the stock price prediction with the error rate below 4%.

Keywords: Stock market prediction, Support Vector Regression (SVR), Firefly Algorithm (FA), financial time series.