FPGA Based Stock Prediction

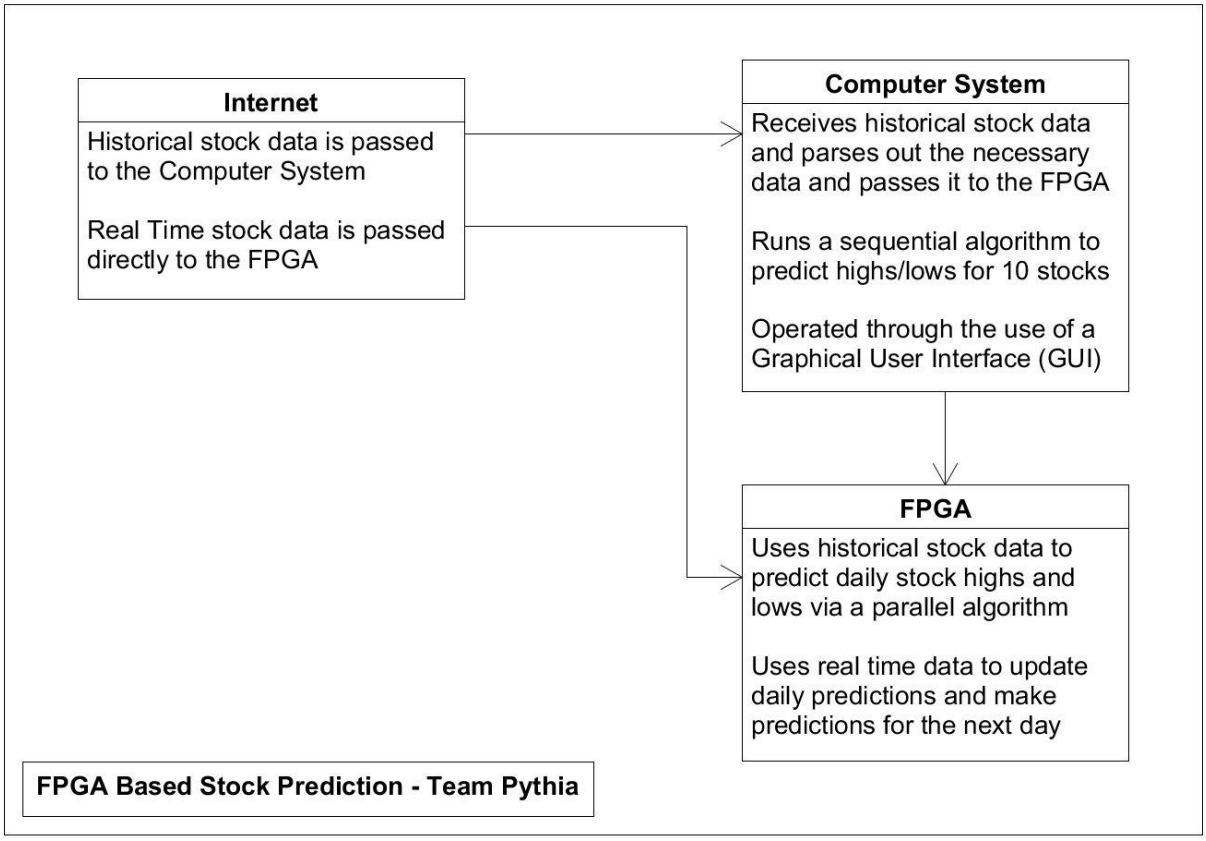
Team Pythia

The purpose of this project is to develop an algorithm to predict daily highs and lows for various stocks and then to implement it on a field programmable gate array (FPGA) and a standard computer system CPU. Performance of the two systems will then be compared. Utilization of an algorithm that can take advantage of parallel programming will run faster on the FPGA than on the sequential CPU.

Stock identifies for ten stocks will be selected using a graphical user interface (GUI). Historical data for those stocks will be pulled from Yahoo and passed to the FPGA via the computer system. This data will be used to make predictions for the high and low prices of the stocks for the day.

Real Time stock data will be pulled from Yahoo and passed to the FPGA. The real time data will be used to adjust daily predictions while the market is open as well as make predictions for the following day.

Finally, a comparison will be made between the procedures or algorithms implemented directly on the FPGA and that of a software based architecture or Personal Computer on speed and proof of concept of how FPGAs can render faster results in computational speed than personal computer architectures.


Internet
Historical stock data is passed to the Computer System
Real Time stock data is passed directly to the FPGA
Computer System
Receives historical stock data and parses out the necessary data and passes it to the FPGA
Runs a sequential algorithm to predict highs/lows for 10 stocks
Operated through the use of a Graphical User Interface (GUI)
FPGA
Uses historical stock data to predict daily stock highs and lows via a parallel algorithm
Uses real time data to update daily predictions and make predictions for the next day
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