Project Status Report Template

Project Name: FPGA Based Stock Prediction

Team Name: Pythia

Project Manager: Clement Cole

Team Members: Christopher Roche, Elijah Adedapo, Enrique Torres

Report Date: 11/17/2016

Reporting Period: 10/20/2016 to 11/17/2016

Management Summary

This reporting period has consisted of research and design. A large portion of labor-hours was invested in project design documentation.

We have continued researching the predictive algorithm and have begun implementing it in C++. A Python script has been written to pull historical data for user selected stocks and outputs the necessary data to CSV files. Work has begun in making an SQL database to hold the data.

Two Linux computers were set up and connected to the network. One will serve as a server and the other will run the software implementation.

Defined milestones completed:	1 of 5 (20%)
Defined tasks completed:	0 of 20 (0%)
Total estimated project hours used:	380 of 1280 (30%)
Ahead of (or Behind) schedule by:	On schedule
Known defects:	None
Staff members on project	1 of 1 planned
Contingency hours remaining:	100% of 100 hours

Schedule

Initial estimated completion date:	May 1, 2017
Previous estimated completion date:	May 1, 2017
Current estimated completion date:	May 1, 2017

Key Milestones Table

ID	Title	Planned Completion Date	Previous Forecast Completion Date	Current Forecast Completion Date	Actual Completion Date
1	Select an algorithm for stock prediction	10/21/ 2016	10/21/2016	10/21/2016	10/15/2016
2	Implement algorithm in hardware	05/01/2017	05/01/2017	05/01/2017	N/A
3	Implement algorithm in software	05/01/2017	05/01/2017	05/01/2017	N/A
4	Use web server to feed stock details to the FPGA	05/01/2017	05/01/2017	05/01/2017	N/A
5	Send analysis results to UI	05/01/2017	05/01/2017	05/01/2017	N/A

Product Size

- It is too early to predict how many logical units on the FPGA will be needed for successful completion. We must determine which FPGA we will use as well as implement the VHDL.
- It is too early to predict how much bandwidth will be required to feed stock data to the computer system and the FPGA.

Effort

Life Cycle Activity	This Reporting Period (labor-hours)		Project to Date (labor-hours)	
	Planned Effort	Actual Effort	Planned Effort	Actual Effort
Algorithm research	40 hours	40 hours	80 hours	80 hours
Yahoo Finance API utilization	40 hours	40 hours	80 hours	80 hours
Algorithm development (C++)	40 hours	40 hours	80 hours	80 hours
Database design	20 hours	20 hours	20 hours	20 hours
VHDL implementation	40 hours	40 hours	40 hours	40 hours
Project design documentation	80 hours	80 hours	80 hours	80 hours

Cost

Life Cycle Activity	This Reporting Period		Project to Date	
	Planned Cost	Actual Cost	Planned Cost	Actual Cost
Algorithm research	$0	$0	$0	$0
Yahoo Finance API utilization	$0	$0	$0	$0
Algorithm development (C++)	$0	$0	$0	$0
Database design	$0	$0	$0	$0
VHDL implementation	$0	$0	$0	$0
Project design documentation	$0	$0	$0	$0

Requirements Status

#	Functional Requirement	Team Member	Status
1.	The system will have a User Interface for hardware-based unit to select which stock's forecasted lows and high to be displayed.	Elijah Adedapo	In Progress
2.	The system will have a User Interface for the software Based computer unit to select which stock's forecasted lows and high to be displayed.	Elijah Adedapo	In Progress
3.	The system will have a data source for the hardware-based unit from external web scraping tool to acquire stock data.	Christopher Roche	In Progress
4.	The system will have a data source for the software-based unit from external web scraping tool to acquire stock data.	Christopher Roche	In Progress
5.	The system will have a data source formatter for input into the hardware-based unit.	Christopher Roche	In Progress
6.	The system will have a data source formatter for input into the software-based unit.	Christopher Roche	In Progress
7.	The system will have a data source formatter for output from hardware-based unit into the computer system server.	Clement Cole	In Progress
8.	The system will have a data source formatter for output from software-based unit into the computer system server.	Enrique Torres	In Progress
9.	User will be able to control the variety of stock output data to be display in User Interface for hardware-based unit.	Elijah Adedapo	
10.	User will be able to control the variety of stock output data to be display in User Interface for software-based unit.	Elijah Adedapo	
11.	Hardware-based unit output will be displayed via a User Interface.	Elijah Adedapo	
12.	Software-based unit output will be displayed via a User Interface.	Elijah Adedapo	
13.	Hardware-based unit must predict the following daily highs and lows of the provided stocks.	Clement Cole	
14.	Software-based unit must predict the following daily highs and lows of the provided stocks.	Enrique Torres	In Progress

#	Non-Functional Requirement	Team Member	Status
1.	The system shall have a User Interface Display to show stock prediction report via graphic user interface for hardware-based unit	Elijah Adedapo	
2.	The system shall have a User Interface Display to show stock prediction report via graphic user interface for software-based system.	Elijah Adedapo	In Progress
3.	The system must be able to display the performance of both hardware and software implementations of the algorithm in terms of speed and latency for both the hardware-based and software-based units.	Elijah Adedapo	
4.	Hardware-based unit must be available during pre-trading hours and regular trading hours.	Clement Cole	
5.	Software-based architecture must be available during pre-trading hours and regular trading hours	Enrique Torres	In Progress
6.	The entire system shall be small enough to fit provided enclosure in the stock trading ground (pit).	Enrique Torres	

Top Five Risks

1. Scheduling: falling behind planned timeline
2. Requirements: may change over time
3. Hardware: FPGA may not support certain algorithms due to hardware limitations
4. Network: latency may affect the accuracy of the algorithm
5. Knowledge: learning curve involved with stock prediction will take a lot of time

Open Issues

No current open issues

Action Items

- Continuing to research genetic algorithms and their usability in stock prediction
- Implementing the prediction algorithm in C++
- Begin VHDL implementation of the prediction algorithm once the C++ implementation gets closer to an initial working model
- Develop a database for data storage and retrieval
- Begin to design a basic (console based) user interface for the system

Defects

No current defects have been identified