

TRADING PLATFORM SYSTEMS AND METHODS

TECHNICAL FIELD

[0001] This application relates generally to an electronic trading platform.

BACKGROUND

[0002] Funds or products are traditionally evaluated and managed by a portfolio manager, a trader, or an analyst. An investment decision is conventionally performed by a person, so the final input into an investment decision is a human input. As a result, the investment decisions that are derived from human inputs have the risk of emotions and irrationality.

[0003] As another drawback to conventional investments, investors do not have access to investment products that provide both capital guarantee and high returns at the same time. Also, investors may not have access to traders who are passionate to learn trading, which can often take years and decades, losing money in the midst of learning.

[0004] Because of these drawbacks, conventional investment products may not offer a high rate of return (e.g., 18% per annum) with capital guaranteed on that investment. In fact, about 85% of current retail traders (i.e., speculators) lose money on their transactions.

[0005] In one conventional solution, funds can solely trade via an algorithm or "black-box trading." These funds used computational finance and high frequency trading technology to analyze opportunities in the market and execute trades. This method of fund management does solve the risk of emotions and irrationality when performing investment decisions. There is also a large component of market sentiment in the financial markets. As such, the market is constantly evolving and technology, but no matter how superior it is, it cannot evolve simultaneously to keep pace with market evolution.

[0006] Because of the constraints of the Dodd Frank Act and Basel III, bankers are not taking on as much risk and are unable to speculate trading positions. Previously, banks used

depositors' credit to speculate trading positions. However, Basel III and the Dodd Frank Act prohibits this speculation because it poses risk on the depositors. As a result, some of the largest banks in the world will not take on risk anymore, and the alternative is to take on the business of brokerage services instead.

[0007] When the largest banks become brokers, the proprietary traders must evolve to become FX price-makers in the buy-side of the industry. Because if the customers do not know the proper method of trading, the broker can no longer provide prices, find a large number of customers, and make money when the customer trades. Instead, the customers may only conduct one transaction and then sit on it for weeks, usually losing money in that transaction.

[0008] When a financial instrument has an underlying physical asset, there is a basis to analyze the asset. Foreign exchange, however, does not have a physical asset, so there is no basis for analysis. Yet retail traders may still analyze the foreign exchange market as they do in equity markets. Moreover, the retail traders tend to hold positions for 10 pip movement, which is inevitably difficult. As a result, most retail trades are not able to trade profitably on a consistent basis.

[0009] There are disadvantages to the conventional solutions. When a trader invests his/her own money, if the market goes in the trader's favor, then the trader tends to be greedy, whereas if the market goes against the trader, then the trader tends to be fearful. It is desirable to have a solution that is not affected by these human emotions.

SUMMARY

[0010] The systems and methods disclosed herein seek to address the problems described above and may provide a number of other advantages. For example, the systems and methods described herein aim to integrate the human input and technology input into every investment decision taken; achieve small but consistent profits; have trading performance be independent of only a small group of high performing traders; limit holding time to limit exposure to the market;

isolate emotional stress of greed and fear from the traders; deliver investment products packaged in a unique structure that caters for the investors expecting capital guarantee and speculators who are willing to take risk for higher returns; allow a trader to master the skill of price action trading within a short time frame. As described in the exemplary embodiments, all traders execute all trades on demo accounts using price action methodology, they focus on making small and consistent winning trades under all market conditions, and the algorithm can map the market conditions to characteristics of the trader in an attempt to guarantee high tagging win rate and profit.

[0011] As described herein, a crowd sourcing, knowledge-harvesting trading platform collects big data from many trader computing devices that place demo trades. The trading platform copies the high probability winning trades from a demo account into the live markets for execution. The trading platform aims to strategically combine human input and technology input into every investment decision taken; train traders to look for market opportunities within a short time (e.g., 90 seconds); incorporate price action trading methodology; allow traders to trade on demo accounts, capture details of all the traders and grade individual trades based on key performance indicators, map the performance characteristics of the trader using big data analytics, execute trades selected from the big data analytics in a live market, map the conditions of the market using an algorithm, segment profits to different classes of speculators, and provide an optimum medium for trading leveraged funds.

[0012] In one embodiment, a computer-implemented method comprises receiving, by a server, a transmission from each of a plurality of trader computing devices comprising a trade for a financial instrument; storing, by the server, each trade in a demo account in a database communicatively coupled to the server; determining, by the server, a market condition; automatically computing, by the server, a probability that a trader associated with a trade in the demo account will have a profitable trade in the determined market condition; and transmitting, by

the server, the trade from the demo account to a live account in a market when the probability that the trader associated with the trade will have a profitable trade is above a threshold amount.

[0013] In another embodiment, a computer-implemented method comprises determining, by a server, characteristics of each of a plurality of traders to determine characteristics of each of the plurality of traders when those traders have the highest probability of entering a profitable trade; determining, by the server, a present market condition; analyzing, by the server, which trader of the plurality of traders has the highest probability of entering a profitable trade in the determined present market condition; and automatically presenting, by the server, a set of data in at least three timeframes for display on a graphical user interface of a trader computing device, wherein the set of data is associated with the determined present market condition for a selected financial instrument and is presented to at least one trader who has the highest probability of entering a profitable trade in that predetermined present market condition.

[0014] In yet another embodiment, a computer-implemented method comprises determining, by a server, a subset of a set of trades entered during a trading session of a predetermined time increment that have a high probability of being a profitable trade; receiving, by the server, a message from at least one speculator computing device to commit funds of a speculator for the trading session having the subset of the set of trades; entering, by the server, the subset of the set of trades in a market; computing, by the server, a profit or loss for the subset of the set of trades entered in the market; and automatically allocating, by the server, the profit or loss for the subset of the set of trades to the at least one speculator based upon the funds committed by the speculator.

[0015] Additional features and advantages of an embodiment will be set forth in the description which follows, and in part will be apparent from the description. The objectives and other advantages of the invention will be realized and attained by the structure particularly pointed out in the exemplary embodiments in the written description and claims hereof as well as the

appended drawings.

[0016] It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The methods, systems and/or programming described herein are further described in terms of exemplary embodiments. These exemplary embodiments are described in detail with reference to the drawings. These embodiments are non-limiting exemplary embodiments, in which like reference numerals represent similar structures throughout the several views of the drawings, and wherein:

[0018] **FIG. 1** illustrates a system architecture according to an exemplary embodiment.

[0019] **FIG. 2** illustrates a trading platform module architecture according to an exemplary embodiment.

[0020] **FIG. 3** illustrates a method of transmitting trades to a trading platform module according to an exemplary embodiment.

[0021] **FIG. 4** illustrates a method of executing an algorithm on a trading platform module according to an exemplary embodiment.

DETAILED DESCRIPTION OF THE DRAWINGS

[0022] In the following detailed description of non-limiting, illustrative embodiments, reference is made to the accompanying drawings that form a part hereof. Other embodiments may be utilized, and logical, structural, mechanical, or electrical changes may be made without departing from the scope of the appended claims. To avoid details not necessary to enable those skilled in the art to practice the embodiments described herein, the description may omit certain information known to those skilled in the art. The following detailed description is non-limiting,

and the scope of the illustrative embodiments are defined by the appended claims.

[0023] A utility trading system **110** comprises a plurality of trader computing devices **120a**, **120b**, **120c**, and a utility trading server **130**. Each trader computing device **120a**, **120b**, **120c** can be associated with a trader. The trader computing devices **120a**, **120b**, **120c** can be a networked computer, such as a personal computer, desktop computer, laptop computer, tablet computer, smart phone, mobile phone, personal data assistant, or the like. Each trader computing device **120a**, **120b**, **120c** has a graphical user interface that can be presented on a display or screen of the trader computing device **120a**, **120b**, **120c** for interaction with a trader. Also, each trader computing device **120a**, **120b**, **120c** has a processor that executes instructions stored on a computer-readable medium.

[0024] The trader computing device **120a**, **120b**, **120c** can also be communicatively coupled to other components of the system. The trader computing devices can transmit information to and from the utility trading server **130** over a network (e.g., wired, wireless, public, or private). For example, a trader can use a graphical user interface on the trading computing device **120a**, **120b**, **120c** to enter a trade, which is transmitted to the utility trader server **130**.

[0025] Although only three trader computing devices **120a**, **120b**, **120c** are shown in **FIG. 1**, it is intended that any number of trader computing devices can be used. It may be preferable to include more trader computing devices to obtain a larger set of data, as discussed below. In one example, the system may comprise over 10,000 trader computing devices.

[0026] An exemplary embodiment recites the input, transmission, analysis, execution, entry, and exit of a trade. The trade may be a transaction for foreign exchange market ("forex") or currency market trading, equity and debt (e.g., stocks, bonds) trading, commodity trading, derivative trading, futures contract trading, exchange traded funds (ETFs), exchange traded notes (ETNs), real estate investment trusts (REITs), U.S. Government treasury trading, or any other financial instrument. In the exemplary embodiment, the trade is a forex trade. Unlike other

financial instruments, currency trading is not based upon an underlying physical asset that can be affected by factors such as weather. Also, forex does not have an exchange, rather it is a transaction between two parties in a counterparty marketplace. Although the exemplary embodiment recites the use of a forex trade, the utility trading system and method described herein can be applied to any financial instrument trading.

[0027] In one embodiment where the trade is for the forex market, the utility trading server **130** transmits information for display on a graphical user interface on the trader computing device **120a, 120b, 120c**. In the exemplary embodiment, the information for display to the trader includes historical data in a plurality of timeframes of a selected financial instrument or multiple financial instruments (e.g., two currencies in a trading pair).

[0028] The historical data can include real-time data and recently-executed transactions. The utility trading server **130** queries a database **170** for this historical data in the timeframes for the selected financial instrument. As the database **170** is updated with new transactions, the utility trading server **130** automatically updates the graphical user interface on the trader computing device **120a, 120b, 120c** to present substantially-real time information in the desired timeframes. For example, in a one minute timeframe, the graphical user interface will display transactions for that particular instrument in the latest one minute, and the graphical user interface will continuously update with new data.

[0029] In the exemplary embodiment, the utility trading system **110** presents three timeframes to each trader computing device **120a, 120b, 120c**, though any number of timeframes may be used. The graphical user interface presents the three different timeframes of transactions for the same financial instrument. The timeframes may range from about five seconds to about one week. In this exemplary embodiment, a first timeframe is ten seconds, a second timeframe is one minute, and a third time frame is ten minutes. Other embodiments may use different timeframes and a different number of timeframes on the graphical user interface. These

timeframes may be used to determine a pattern and/or whether a trend is emerging, such as a direction upwards or downwards. The trade may be placed based upon the pattern/trend or a change in the pattern/trend. In one embodiment, the trader submits a trade on the trader computing device **120a**, **120b**, **120c** when the three timeframes show the same trend (e.g., all show an upward or all show a downward trend). In an alternative embodiment, the trade may be placed automatically or by an algorithm when the three timeframes satisfy a predetermined condition.

[0030] The traders view the graphical user interface on the trader computing devices **120a**, **120b**, **120c**, and determine when to enter a trade for a particular currency or other financial instrument. The traders may implement price action trading, whereby the traders may make trading decisions based on the actual price movement shown on the charts on the graphical user interface. For example, when the market appears to be heading in an upward direction, the trader may be more aggressive and buy in that transaction. And when the market appears to be heading in a downward direction, the trader may be more defensive and sell in that transaction.

[0031] The utility trading server **130** is configured to receive and transmit information to and from the trader computing devices **120a**, **120b**, **120c**. The utility trading server **130** can collect trades from the plurality of trader computing devices **120a**, **120b**, **120c**. Although the exemplary embodiment shows the utility trading server **130** as a single server, it is intended that the utility trading server **130** can be one or more servers and may be communicatively coupled to one or more databases, which can be implemented within the utility trading server or as a separate component.

[0032] The utility trading server **130** has a trading platform module **140**. In the exemplary embodiment, the trading platform module **140** comprises software executed on the utility trading server **130** by a processor of the utility trading server **130**. The trading platform module **140** can also comprise more than one module, whereby each module can perform a particular function. For example, one module or component of the trading platform module **140** can perform analytics on

the trades and traders, and another module or component of the trading platform module **140** can enter demo trades into the live market. In other embodiments, the trading platform module **140** can be configured as a separate server that is communicatively coupled to the utility trading server **130**. The trading platform module **140** can operate for trading currencies as well as other financial asset classes, e.g., gold, stock indices, commodities, etc.

[0033] Trades transmitted from the trader computing devices **120a**, **120b**, **120c** to the utility trading server **130** can be processed individually, in batches, or all at once by the trading platform module **140**. Also, the trades from the utility trading server **130** can be processed by the trading platform module **140** on a real-time or periodic basis (e.g., every 5 seconds, 10 seconds, 30 seconds, 1 minute, 90 seconds, 10 minutes, 30 minutes).

[0034] Many large banks assess the profitability of their positions for the first 60 seconds and if not profitable, they will liquidate their position within 90 seconds. Hence, after 90 seconds, the market will move against the previous direction and will revert a loss for any positions maintained after 90 seconds. As a result, a strategy of buying at lowest and selling at highest or vice-versa does not exist anymore. By holding the position over 90 seconds, the retail traders mostly incur a loss that initially was a profitable position, because many large banks liquidate their positions. So the trading platform described herein can limit the holding period (e.g., limited to 90 seconds) in an attempt to limit the exposure to the market.

[0035] The trading platform module **140** may implement a trading time limit (e.g., 30 seconds, 60 seconds, 90 seconds). In an exemplary embodiment, the trading platform module **140** has a 90 second trading limit, so all trades must be closed within 90 seconds of being executed. When a trade is closed on the live market, then the position is exited from the market and the capital associated with that trade is no longer at risk. The trading platform module **140** can implement a stop loss. For example, a stop loss may be set at -2 pips (a pip is the smallest price change that a given exchange rate can make), so a loss on a particular trade is limited to only 2

pips. Once the trade reaches the stop loss position (e.g., -2 pips), the trading platform module **140** automatically closes the trade. Alternatively, once the trade reaches a desired profit, the trading platform module **140** can automatically close the trade. In yet another alternative, the trading platform module **140** can automatically close the trade after 90 seconds if it has not yet reached a maximum loss or desired profit. So if the trade does not get closed out, then the trading platform module **140** will automatically close it.

[0036] The trading platform module **140** can divide the market into increments of time, such as 30 minute increments. During the session lasting for that time increment, the trading platform module **140** may give a limited amount of opportunities for the trader to submit a proposed trade using the graphical user interface on the trader computing devices **120a**, **120b**, **120c**. In an exemplary embodiment, the trader can submit only one trade in the time increment (i.e., one trade submission for each 30 minute increment). The submitted trade is transmitted to the trading platform module **140**, where it is analyzed to determine whether the trade should be executed on the live markets and whether the trader should be given an opportunity for another trade submission. The time elapsed during the time increment for the trader to submit a potentially profitable trade can be a factor in determining the profitability of that trader in that market condition. If the trader submits a trade to the trader computing device **120a**, **120b**, **120c**, and the trading platform module **140** determines that submitted trade is a potentially profitable trade, the trading platform module **140** will assess the market condition and may allow the trader to submit additional trades during the time increment while the market conditions are favorable to that trader.

[0037] The trades inputted by the traders into the trader computing devices **120a**, **120b**, **120c** are not yet real trades that are active on the markets. Instead, these trades are first processed by the trading platform module **140** as demo trades in a demo account before the trading platform module **140** determines which trades should be transferred to a live account for transmission to the

live markets. Entering the trades in a demo account can eliminate human emotions such as greed and fear.

[0038] A database, e.g., database **170**, may store records associated with a demo account and a live account. All trades from the trader computing devices **120a**, **120b**, **120c** are transmitted to the demo account for storage. Upon a determination by the trading platform module **140** that a trade should be executed on the live market, the trading platform module **140** transfers the trade from the demo account to the live account on the database. The trading platform module **140** then enters the trade from the live account.

[0039] The trading platform has an artificial intelligence computational finance framework that can analyze data of a large number of traders, select the highest probability winning trades from all the demo trades generated by the traders, and copy those highest probability winning trades from the demo account into the live markets.

[0040] The trading platform module **140** is configured to analyze submitted trades, characteristics of the traders, and market conditions. The trading platform algorithm can determine the market conditions and evaluate each trader's performance in respect to those market conditions in which the trader is contemplating a trade. The trading platform can monitor the market microstructure as well as the price formation process, determine the current market condition and state, and link the market condition directly to the reaction of the trader. The trading platform module algorithm analyzes the received trades from each trader computing device to determine the trader's aptitude in different market conditions and the trader's trading patterns. The trading platform can analyze entries of traders based on predictive modeling and behavioral finance, i.e., analyze the aptitude of the traders in various market conditions. Based upon this analysis, a particular type of chart can be displayed on the trader computing device of each trader. The trading platform module **140** analyzes the types of traders who perform well in particular types of market environment, and if such market environment is depicted by a certain currency

pair or asset class, the chart of that currency pair or asset class is presented for display on the screen of trader computing device of the trader.

[0041] The trading platform module **140** is configured to analyze trades received by the utility trading server **130**. The trading platform module **140** can conduct predictive analysis for each of the trades received. In one embodiment, the trading platform module **140** can apply a threshold and only a certain percentage (e.g., 20%) of the demo trades that are most likely to be profitable (e.g., highest probability of being a winning trade) can be transmitted to live markets. The best trades can be selected from a large pool, potentially executed by thousands of traders, thereby diversifying the risk of a few traders under-performing, resulting in a more consistent return on investment. In an alternative embodiment, rather than using a percentage, a threshold can be used, whereby a predicted profitability above a certain threshold can qualify as a trade that should be transmitted to the live markets. The utility trading module **140** analyzes market moves, identifies support and resistance levels, and determines optimal entry and exit levels for high probability winning trades. The trading platform module **140** can select trades that are more likely to guarantee a high tagging win-rate and stress tests the number of traders to tag (not more than 20%, for example).

[0042] In the exemplary embodiment, the trading platform algorithm can evaluate the trader's execution and how he performs in various market conditions. In an alternative embodiment, the trading platform algorithm can identify opportunities (e.g., buy or sell a particular financial instrument) in the market, and if a trader executes one such opportunity, the trade is tagged. Hence, only if both the algorithm and the trader identifies the same opportunity, the trade will be tagged.

[0043] The performance of a trader is analyzed by the trading platform module **140**. The trading platform module **140** may use the most recent submitted trade or a set of the most recently submitted trades to determine the performance of the trader. The trading platform module **140**

may also use older historical data for performance of the trader under various conditions (e.g., market conditions, trader biological conditions). The trading platform module **140** attempts to determine the characteristics of a particular trader when that trader submits a profitable trade. When those trader characteristics are identified and match the present conditions of the trader and the market, the trader's submitted trades may be selected as high probability profitable trades for the live market.

[0044] One factor that may affect the success of a trader is whether the trader recently took a break. In some instances, a trader may be more profitable after a break. So the trading platform module **140** will track breaks by the trader and may execute trades submitted by a trader after the break when that trader shows more profitability after taking a break.

[0045] Another factor that may affect the success of a trader is his psychological frame of mind (e.g., level of alertness) when submitting a trade. In one embodiment, the trading platform module **140** will track game-playing by the trader and may execute trades submitted by a trader based on his performance in playing the game if it is indicative of a certain psychological frame of mind which shows more profitability.

[0046] In another example, the trading platform module **140** may look at biological conditions of the traders. Each trader may be suited with wearable technology, such as a heart rate monitor, to determine a biological condition of the trader. The trading platform module **140** may store data associated with the measured biological condition (e.g., heart rates). If a trader performs better or worse when having a particular heart rate (e.g., a heart rate above or below a certain threshold), then the trading platform module **140** will consider this performance at that heart rate when determining whether to execute the trader's demo trade on the live market. For example, when a trader performs well at a high heart rate, the trading platform module **140** may execute the trades of that trader when the trader's heart rate reaches that high level.

[0047] When a trader has inputted a predetermined number (e.g., three) of consecutive

profitable trades, he may receive an incentive award (e.g., a monetary award). This serves to incentivize traders to submit not just isolated profitable trades but a series of successive profitable trades on a consistent basis.

[0048] The trading platform algorithm considers time taken and time interval metrics, which can be used to determine a reaction time for a trader. The degree to which a trader is successful is often observed in the length of the time interval between placing a winning or losing trade and the next follow-up trade. If the trader is profitable, the trades tend to be closer together in time, whereas if the trader is losing on these trades, then the trades tend to be further apart. As a result, the time taken and time interval metrics can affect risk management.

[0049] The trading platform algorithm may use other metrics regarding characteristics of the trader to provide insight into a trader's level of confidence: frequency of placing orders, frequency of pulling orders, time interval taken to accept a loss, time interval taken to accept a profit, use of stops, reaction time to sharp market movement, and reaction time to slow market movement. Other metrics which may be used by the trading platform algorithm include the traders' horoscope, astrology and date and time of birth.

[0050] The trading platform module **140** executes an algorithm that receives inputs of market characteristics and conditions, such as volatility, spreads, and technical indicators. The trading platform module **140** can analyze liquidity of the market to see if the quantum injected to the market can be absorbed depending on market environment.

[0051] The trading platform module algorithm evaluates when to exit from the position or trade from the analysis of the market characteristics, as well as determine an allocation of capital for each executed trade. Though the entry of a trade is replicated in a live market, the algorithm will decide when to exit the position. Upon evaluating the market conditions, a speed-based exit and trailing stop analogy can be utilized to close positions when optimal.

[0052] During the trading session of a predetermined time increment, the trading platform

module **140** can determine the condition of the market and select to use the demo trades from those traders who are most likely to place profitable trades in that determined condition of the market. For example, if the market condition is upward trending, then the trading platform module **140** communicates with database **170** to obtain a listing of traders who have historically been successful in that condition. Those demo trades can be executed as live trades.

[0053] The trading platform module **140** can execute a trade from a demo account on the live market. When the trading platform module **140** determines that a trade is likely to have a high probability of profitability (i.e., likelihood that it is a winning trade), the trading platform module **140** may execute the entry of the trade according to the demo trade, but may execute a different exit strategy based upon analytics of the market conditions. For example, the trading platform module **140** may optimize the exit with a trailing position so that the exit can take advantage of a particular market condition. As a result, while the submitted demo trade may exit at 1 pip, the trading platform module **140** can maximize the return by implementing a trailing exit when the market continues to trend upwards, thereby allowing a 9 pip return. Also, while the demo trade may have been submitted with a marginal gain, the trade can be entered at a much higher value when there is more confidence in the profitability of that trade. For example, a trade may be submitted for a 1 pip profit, but the trade can be entered at an amount where the 1 pip is a greater value.

[0054] At least one investor can use an investor computing device **150** to contribute funds to the system. The investor contributes the funds with an expectation that the investor will receive the invested principal as well as a guaranteed return on the investment, e.g., 18 % per annum. The funds invested by the investors through at least one investor computing device **150** is not used as capital for a trade. Instead, these funds may be leveraged by a bank or other entity. The funds may be leveraged 50 times, 100 times, 200 times, or even 1000 times the principal amount.

[0055] A speculator can use a speculator computing device **160** to invest funds. In contrast

to the investor, the speculator is willing to commit invested funds to the trades. In return for the risk, the speculator expects to receive a greater return on the investment. For example, a speculator may invest \$1,000 or \$10,000 and expect an annual rate of return close to 30% (or 2.5% per month). The speculator invests a margin, and the speculator is accountable for a loss of that margin. The speculator does not determine how the funds are invested or what trades are executed.

[0056] The investors' contribution is used to create leverage for the trades, and the speculators' contribution is invested in the trades. The speculator can choose which trading session (e.g., which 30 minute period(s)) to invest funds, how much to invest, and a desired rate of return. This information is entered into the speculator computing device **160** and transmitted to the trading platform module **140**. When the speculator wants to invest in a time increment, this action is referred to as "tagging." The speculator enters this request in the speculator computing device **160**, which transmits the tag as a message to the trading platform module **140**, thereby allocating the speculator's funds to the time increment and adding the speculator to a list of entities to be paid if a profit is made upon the end of the time increment. At the end of the time increment, the trading platform module **140** allocates a profit, loss, or break-even amount to the various speculators that tagged that time increment. A speculator may desire to invest \$1000 and receive a return of \$100 in that time increment. The investment of \$1000 may, for example, be leveraged 1000 times, resulting in a trading amount of \$ 1 million. At \$1 million, 1 pip is worth \$100, so the utility trading system **110** would need to allocate 10 pip as gain for the speculator for the desired return. Upon the end of the time increment, the trading platform module **140** can allocate a profit, loss, or break-even amount to the speculator.

[0057] The trading platform module **140** may allocate a fee for each tag. For example, the trading platform module **140** may assess a 1 pip fee to a speculator when the speculator tags the utility trading system **110**. In this example, if the utility trading system **110** earns a 1.5 pip fee,

then the utility trading system **110** keeps 1 pip and the speculator can receive the remaining 0.5 pip. Part of the fees earned from tags by speculators may be used to pay the return to investors.

[0058] The trading platform can manage data processing, information systems analytics, and behavioral analysis and mapping. The behavior of each trader can be mapped to various metrics in the market ecosystem (i.e., market conditions). The trading platform has a trader behavioral analytics fuzzy inference system.

[0059] The trading platform combines two different features. First, the trading platform analyzes trader behavior to measure the traders' performance as a result of various factors that could affect a trader's behavior. Second, the trading platform uses a fuzzy inference system, which uses fuzzy logic that is less rigid than a binary calculation.

[0060] Trader behavioral analytics are specific metrics that can be tied to the trader's various psychological conditions, such as emotions, personal feelings of well-being, and opinion about the market, amongst other things. External factors are also found to affect the traders' performance in the market, including profit and loss, wins and losses, long wins and long losses, etc. These factors may also affect a trader's judgment in identifying the different market conditions, such as very bearish, bearish, sideways, bullish, very bullish etc., as well as the degree of volatility and amount of volume on the day.

[0061] The fuzzy inference system uses fuzzy logic, which is a superset of conventional (Boolean) logic that has been extended to handle the concept of partial truth values between "completely true" and "completely false."

[0062] A trader behavioral analytics fuzzy inference system (TBA-FIS) is a component of the trading platform. The TBA-FIS can assess traders' performance by examining the various metrics as inputs to the system, measuring the various metrics, and providing results on which trader outperformed all the other traders. The TBA-FIS will analyze why a specific trader did better or worse than the others by providing an analysis of the different weights of the metrics.

The analysis from the TBA-FIS can be used to impact and leverage the trader's decision making process in order to improve the trader's performance.

[0063] The database can store data regarding trader characteristics, trading history, demo account information, live account information, market conditions, and other information. The trading platform can query and retrieve information from the database, e.g., using a dynamic data exchange (DDE), depending on the nature of data gathering. The TBA-FIS can be provided with various behavioral analytics and will produce an output that depicts the performance of the trader or group of traders. The output from the TBA-FIS can be saved in a database. In one embodiment, the output will be illustrated graphically on screen for analysis, and this feedback can assist to assess traders' decision-making.

[0064] Referring to **FIG. 2**, components of a trading platform module **200** are shown according to an exemplary embodiment. The trading platform module **200** has a computer-readable storage medium **210** that can store data. Data can be inputted from a trader computing device **220**. The storage **210** is communicatively coupled to a fuzzy inference system **240** using an API **230**. Metrics from the storage **210** can be provided to the fuzzy inference system **240**. The fuzzy inference system **240** is also communicatively coupled to a SQL database **270**. Performance data from the fuzzy inference system **240** is transmitted to an output module **250**. The output module **250** is communicatively coupled to a utility trading workstation **290**, and the output module **250** can transmit the performance data for display on the utility trading workstation **290**. The output module **250** is also communicatively coupled to a performance analysis module **260**. The performance analysis module **260** can provide analysis of the performance data, which can be transmitted to a feedback and control system **280**, which may be a component of the utility trading platform. The feedback and control system **280** transmits a control signal to the trader computing device **220** in an attempt to impact and leverage the trader's decision making.

[0065] Referring to **FIG. 3**, an exemplary method is shown. In step **310**, a set of trader

computing devices receive inputs from a set of traders, who analyze the evolving market and input a trade accordingly. Due to the large set of traders, e.g., over 10,000 traders, the system can diversify the risk and trading performance is not dependent upon a small group of high performing traders. The trades can be based upon pure price action without fundamentals, which may require fewer considerations in executing the trades. The trades may also be placed in different asset classes.

[0066] In step **320**, a utility trading computer receives the inputs from the trader computing devices and performs scalping using price action theory, which can greatly reduce concepts of fundamentals, interest rate dependency, and event driven event influence, as well as allow for small but consistent profits.

[0067] In step **330**, the inputted trades are each entered into a demo account, which can isolate emotional stress of greed and fear while trading. Because a demo account is used rather than placing the trade on the live market for execution, a trade can be submitted more objectively and may be inputted with less fear and greed.

[0068] In step **340**, the utility trading server transmits the inputted demo account trades to a trading platform module, which automatically analyzes market conditions and matches those conditions to characteristics of each trader who perform well in those conditions.

[0069] As shown in **FIG. 4**, a trading platform module algorithm can be executed as follows. In step **410**, the trading platform module receives information regarding all trades in the demo account received from the set of trader computers.

[0070] In step **420**, the trading platform module algorithm assigns a grade to each individual trade based upon predetermined key performance indicators, including but not limited to: profit, holding time, marked to market losses, and take profit ratio. These grades can be used to segment the traders.

[0071] In step **430**, the trading platform module algorithm maps the trade to the live markets to determine the market condition in which the trade was placed. For example, even though a trader may have an average rate of 60%, it is possible that the trader has an 85% win rate in an up-channel of 35 degrees and a volatility of 15 pips. The mapping can be performed after the trader has placed a substantial number of trades in the system following a trade plan and rules of price action trading.

[0072] As described above, the trading platform module algorithm can evaluate a set of trades inputted by a trader to determine how the trader performs in various market conditions. In an alternative embodiment, the trading platform module algorithm can identify opportunities in the market and if a trader executes on an identified opportunity, then the trade will be executed in the live market. In one embodiment, a trade will be executed if both the algorithm and the trader identify the same opportunity.

[0073] In an exemplary process, a trader aims to make a small and consistent profit and aims to precisely time entry and exit levels. The trader enters the trade on a trader computing device, and all trades are closed within 90 seconds. The trades are executed on demo accounts to isolate the traders from the emotional factors associated with trading, such as greed and fear.

[0074] A trading platform uses an algorithm and big data analytics to map the characteristics of the traders when they perform best with the market conditions so that the trading platform can select the highest-probability winning trades for a live market. When the trading platform enters the highest-probability winning trades, the trading platform is more likely to receive positive returns. When the trading platform receives positive returns, those speculators that tagged the trading platform for that trading session can also receive positive returns.

[0075] Although certain illustrative, non-limiting exemplary embodiments have been presented, various changes, substitutions, permutations, and alterations can be made without departing from the scope of the appended claims. Further, the steps of the methods described

herein may be carried out in any suitable order, or simultaneously where appropriate. Thus, the scope of the invention should not necessarily be limited by this description. The scope of the present invention is instead defined by the following claims.

[0076] Unless specifically stated otherwise as apparent from the following discussion, it is appreciated that throughout the description, discussions utilizing terms such as “processing,” “computing,” “transmitting,” “receiving,” “determining,” “displaying,” “identifying,” “presenting,” “establishing,” or the like, can refer to the action and processes of a data processing system, or similar electronic device, that manipulates and transforms data represented as physical (electronic) quantities within the system’s registers and memories into other data similarly represented as physical quantities within the system’s memories or registers or other such information storage, transmission or display devices. The system or portions thereof may be installed on an electronic device.

[0077] The exemplary embodiments can relate to an apparatus for performing one or more of the functions described herein. This apparatus may be specially constructed for the required purposes, or it may comprise a general purpose computer selectively activated or reconfigured by a computer program stored in the computer. Such a computer program may be stored in a machine (e.g. computer) readable storage medium, such as, but is not limited to, any type of disk including floppy disks, optical disks, CD-ROMs and magnetic-optical disks, read only memories (ROMs), random access memories (RAMs) erasable programmable ROMs (EPROMs), electrically erasable programmable ROMs (EEPROMs), magnetic or optical cards, or any type of media suitable for storing electronic instructions, and each coupled to a bus.

[0078] The exemplary embodiments described herein are described as software executed on at least one server, though it is understood that embodiments can be configured in other ways and retain functionality. The embodiments can be implemented on known devices such as a personal computer, a special purpose computer, cellular telephone, personal digital assistant

(“PDA”), a digital camera, a digital tablet, an electronic gaming system, a programmed microprocessor or microcontroller and peripheral integrated circuit element(s), and ASIC or other integrated circuit, a digital signal processor, a hard-wired electronic or logic circuit such as a discrete element circuit, a programmable logic device such as a PLD, PLA, FPGA, PAL, or the like. In general, any device capable of implementing the processes described herein can be used to implement the systems and techniques according to this invention.

[0079] The exemplary embodiments can relate to an apparatus for performing one or more of the functions described herein. This apparatus may be specially constructed for the required purposes and/or be selectively activated or reconfigured by computer executable instructions stored in non-transitory computer memory medium.

[0080] It is to be appreciated that the various components of the technology can be located at distant portions of a distributed network and/or the Internet, or within a dedicated secured, unsecured, addressed/encoded and/or encrypted system. Thus, it should be appreciated that the components of the system can be combined into one or more devices or co-located on a particular node of a distributed network, such as a telecommunications network. As will be appreciated from the description, and for reasons of computational efficiency, the components of the system can be arranged at any location within a distributed network without affecting the operation of the system. Moreover, the components could be embedded in a dedicated machine.

[0081] Furthermore, it should be appreciated that the various links connecting the elements can be wired or wireless links, or any combination thereof, or any other known or later developed element(s) that is capable of supplying and/or communicating data to and from the connected elements. The term “module” as used herein can refer to any known or later developed hardware, software, firmware, or combination thereof that is capable of performing the functionality associated with that element.

[0082] All references, including publications, patent applications, and patents, cited herein

are hereby incorporated by reference to the same extent as if each reference were individually and specifically indicated to be incorporated by reference and were set forth in its entirety herein.

[0083] The use of the terms “a” and “an” and “the” and similar referents in the context of describing the invention (especially in the context of the following claims) are to be construed to cover both the singular and the plural, unless otherwise indicated herein or clearly contradicted by context. The terms “comprising,” “having,” “including,” and “containing” are to be construed as open-ended terms (i.e., meaning “including, but not limited to,”) unless otherwise noted. Recitation of ranges of values herein are merely intended to serve as a shorthand method of referring individually to each separate value falling within the range, unless otherwise indicated herein, and each separate value is incorporated into the specification as if it were individually recited herein. All methods described herein can be performed in any suitable order unless otherwise indicated herein or otherwise clearly contradicted by context. The use of any and all examples, or exemplary language (e.g., “such as”) provided herein, is intended merely to better illuminate the invention and does not pose a limitation on the scope of the invention unless otherwise claimed. No language in the specification should be construed as indicating any non-claimed element as essential to the practice of the invention.

[0084] Presently preferred embodiments of this invention are described herein, including the best mode known to the inventors for carrying out the invention. Variations of those preferred embodiments may become apparent to those of ordinary skill in the art upon reading the foregoing description. The inventors expect skilled artisans to employ such variations as appropriate, and the inventors intend for the invention to be practiced otherwise than as specifically described herein. Accordingly, this invention includes all modifications and equivalents of the subject matter recited in the claims appended hereto as permitted by applicable law. Moreover, any combination of the above-described elements in all possible variations thereof is encompassed by the invention unless otherwise indicated herein or otherwise clearly contradicted by context.

CLAIMS

What is claimed is:

1. A computer-implemented method comprising:
receiving, by a server, a transmission from each of a plurality of trader computing devices comprising a trade for a financial instrument;
storing, by the server, each trade in a demo account in a database communicatively coupled to the server;
determining, by the server, a market condition;
automatically computing, by the server, a probability that a trader associated with a trade in the demo account will have a profitable trade in the determined market condition; and
transmitting, by the server, the trade from the demo account to a live account in a market when the probability that the trader associated with the trade will have a profitable trade is above a threshold amount.
2. The computer-implemented method according to claim 1, wherein the threshold amount comprises the most profitable 20% of the trades.
3. The computer-implemented method according to claim 1, further comprising:
establishing, by the server, a trading session having a time increment; and
limiting, by the server, a number of trades submitted by each trader during the trading session having the time increment.
4. The computer-implemented method according to claim 3, wherein the time increment is 30 minutes.

5. The computer-implemented method according to claim 3, wherein the number of trades is one.

6. The computer-implemented method according to claim 1, wherein the plurality of trader computing devices comprises at least 10,000 trader computing devices.

7. The computer-implemented method according to claim 1, wherein computing the probability comprises:

identifying, by the server, a biological condition of each trader;

identifying, by the server, a set of characteristics of each trader when that trader has a high probability of making a profitable trade, wherein the set of characteristics comprises at least one biological condition;

storing, by the server, a record of the set of characteristics of each trader when that trader has a high probability of making a profitable trade; and

determining, by the server, whether the identified biological condition matches the biological condition in the record of the set of characteristics.

8. A computer-implemented method comprising:

determining, by a server, characteristics of each of a plurality of traders to determine characteristics of each of the plurality of traders when those traders have the highest probability of entering a profitable trade;

determining, by the server, a present market condition;

analyzing, by the server, which trader of the plurality of traders has the highest probability of entering a profitable trade in the determined present market condition; and

automatically presenting, by the server, a set of data in at least three timeframes for display on a graphical user interface of a trader computing device, wherein the set of data is associated with the determined present market condition for a selected financial instrument and is presented to at least one trader who has the highest probability of entering a profitable trade in that predetermined present market condition.

9. The computer-implemented method according to claim 8, further comprising:

receiving, by the server, at least one trade from each of a plurality of trader computing devices;

entering, by the server, a percentage of the received trades that are determined to have the highest probability of being a profitable trade.

10. The computer-implemented method according to claim 8, further comprising:

establishing, by the server, a trading session having a time increment; and

limiting, by the server, a number of trades submitted by each trader during the trading session having the time increment.

11. The computer-implemented method according to claim 10, wherein the time increment is 30 minutes.

12. The computer-implemented method according to claim 10, wherein the number of trades is one.

13. The computer-implemented method according to claim 9, wherein the plurality of trader computing devices comprises at least 10,000 trader computing devices.

14. The computer-implemented method according to claim 8, wherein analyzing comprises:
- identifying, by the server, a biological condition of each trader;
 - identifying, by the server, a set of characteristics of each trader when that trader has a high probability of making a profitable trade, wherein the set of characteristics comprises at least one biological condition;
 - storing, by the server, a record of the set of characteristics of each trader when that trader has a high probability of making a profitable trade; and
 - determining, by the server, whether the identified biological condition matches the biological condition in the record of the set of characteristics.
15. A computer-implemented method comprising:
- determining, by a server, a subset of a set of trades entered during a trading session of a predetermined time increment that have a high probability of being a profitable trade;
 - receiving, by the server, a message from at least one speculator computing device to commit funds of a speculator for the trading session having the subset of the set of trades;
 - entering, by the server, the subset of the set of trades in a market;
 - computing, by the server, a profit or loss for the subset of the set of trades entered in the market; and
 - automatically allocating, by the server, the profit or loss for the subset of the set of trades to the at least one speculator based upon the funds committed by the speculator.
16. The computer-implemented method according to claim 15, further comprising:
- receiving, by a server, a transmission from each of a plurality of trader computing devices comprising a trade for a financial instrument, wherein the trade from each of the plurality of trader computing devices collectively forms a set of trades;

analyzing, by the server, which trader of the plurality of traders has the highest probability of entering a profitable trade in a determined present market condition; and

forming, by the server, the subset of trades based on the trades from each of the plurality of traders that has the highest probability of entering a profitable trade.