

# A Proposed Software System for Day Trading using Fundamental, Technical and Sentiment Analysis

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## ***Abstract***

*What is being proposed is a software system where an invested fund will return a minimum 5 percent in 2 – 3 week period. The system will automatically pick around 15 stocks and allocate percentages of a fund on them. Picking those stocks will be based on technical, fundamental and sentiment analysis.*

**Keywords:** *Swing Trading, Fundamental Analysis, Technical Analysis, Sentiment Analysis*

## **1. Introduction**

Swing trading software systems are currently available on the market, however, most of them only use technical analysis to pick viable winners. With the advancement of sentiment analysis algorithms, it is ripe to incorporate these technologies in trading systems. However, using sentiment analysis alone may not ground the predictions properly as sometimes human communication can be very abstract. Thus, tuning the predictions with technical and fundamental analysis may hopefully address this.

## **2. Framework**

The technology stack used will be the following:

Website Name: <http://autoswingtrade.com/>

Broker API: <https://www.interactivebrokers.co.uk>

Website hosting: <https://sites.google.com/>

Sentiment Analysis Framework: <https://cloud.google.com/natural-language>

Web Scraper: <https://scrapy.org/>

Stock Market Historical Data: <https://www.interactivebrokers.co.uk>

Technical Analysis: <https://www.ta-lib.org/>

Fundamental Analysis Data: <https://www.sec.gov/edgar/search-and-access>

Source Code Upload: <https://github.com/reubencapio/AutoSwingTrader>

Data for Sentiment Analysis:

<https://www.reddit.com/>

<https://twitter.com/home>

Various Blogs and Websites

\*These are subject to change upon results of further research.

## **3. User Interface**

The user will have to register and sign up for the service on the website. The user will have to allocate a minimum of 100 Euro or 100 USD and the system will reallocate those to the 15 selected funds monthly.

For Example:

**Table 1. User Interface**

**Auto Swing Trading**

Last months return was 8%

Month: April 2021

Deposit money now

Log in

These will be the stocks to be traded this month:

1. PLTR
2. GOOG
3. TSLA
4. LMND
5. NBIX
6. CRWD
7. NEWR
8. SEDG
9. ATVI
10. ROKU
11. SHOP
12. FSLY
13. ZBRA
14. HUBS
15. WIX

#### **4. Technical Analysis and Indicators to Be Used**

- a. 50-Day EMA and 200-Day EMA
- b. Mean Reversion Indicators
- c. Relative Strength Indicators
- d. Momentum Indicators
- e. Volume Indicators
- f. Momentum Indicators
- g. Bollinger Band
- h. Cossover
- h. Others

#### **6. Fundamental Analysis**

Analyze data from <https://www.sec.gov/edgar/search-and-access>

Some of the Fundamental Analysis Framework to be used:

- a. Intrinsic Value
- b. Strategic Financials
- c. Strategic Intangibles
- d. Others(based on more research)

## 6. Methodology

Scrapy and other tools will be used to scour Reddit, Twitter, different blogs and websites to scour specific stocks which are trending at the moment. Google's Sentiment Analysis API will be used to check what the sentiments for these stocks are based on their scraped data. Various technical indicators will be computed using the ta-lib.org library and the historical data provided by Interactive Brokers. Grades will be given to each stock based on this. For the fundamental analysis however, it will have to be done manually using a framework of indicators. The scores for each of these analysis will be fed into a grading system and will be backtested for the past 3 weeks to get the optimized return. The end result will then be used with the interactive broker API to send a buy or sell signal.

## 7. Acknowledgments

Thank you professor Blanco and to my family for helping me with this.

## 8. References

### *A literature review of technical analysis on stock markets*

Authors: Rodolfo Toríbio, Farias Nazário, Jéssica Limae Silva, Vinicius Amorim Sobreiro, Herbert Kimura, University of Brasília, Department of Management, Campus Darcy Ribeiro, Brasília, Federal District 70910-900, Brazil, University of Brasília, Department of Accounting, Campus Darcy Ribeiro, Brasília, Federal District 70910-900, Brazil

### *How rewarding is technical analysis? Evidence from Singapore stock market*

Authors: Wing-Keung Wong, Department of Economics, National University of Singapore, Meher Manzur Boon-Kiat Chew

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### Author



**Reuben Capio**, is a software developer currently based in Germany. He is married and has 2 children. He would like to get a dog someday.

Disclaimer: Investments are risky. Automated trading systems created by mediocre developers with hazy knowledge of math are riskier. Invest at your own risk.