

# Detection and Analyzation of Candlestick Pattern using YOLO Object Recognition

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**Abstract** - The financial market if accompanied by the latest technology, the chance to generate high income can increase effectively. The traders use candlestick charts to visualize the market in a better way and also to study the movement of the market. The candlestick chart depicts four main values of HOLC i.e., High, Open, Low, Close. The candle pattern chart is plotted by using these values for a specific period. When closely observed, the different charts from historic data or a long period of various quotes we can find some similar occurring patterns formed by the candles. So we used the same occurring patterns to feed our model to recognize similar occurring patterns if found in the real-time chart plotted of the financial market.

**Key Words:** Financial Market, Candlestick, Patterns, YOLO, Chart plotting, Pattern Recognitions

## 1. INTRODUCTION

Human intelligence can make better decisions by using graphic presentations. And in the finance sector, all the formations, indicators and technical analysis that is done is Closely studied and predicted using charts. To help make this process of prediction and classification easier artificial intelligence can be used. As technology has grown and artificial intelligence has evolved over the years, its implementation can be seen in the financial market also. The prediction methods of AI classification based on data like video, audio, and images in deep learning have shown great performance. The following proposed model is based on a supervised Yolo model of object classification based on labels given through labellmg software. The model can help to recognize patterns in the real time market, thus enabling the trader to have an insight of the direction of the market in the future. The main motive of the study is the same, i.e., providing a platform to easily predict the direction of the market and highlight the patterns in the chart.

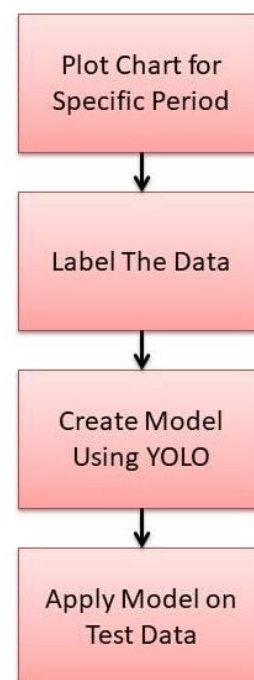


Fig -1: Flow

### 1.1 Plotting and Labeling Data

The candle chart is plotted for a specific period, and a pattern is searched. If a candle pattern is encountered then the specific chart is saved in an image format. Then the image is labeled in the Labellmg software accordingly.

#### A. Data Collection

To create the train and test data, the chart is plotted using data collected form yfinance library provided by yahoo and the candlestick chart is plotted using python programming language.



Fig -2: Candlestick chart of cadilalc stock

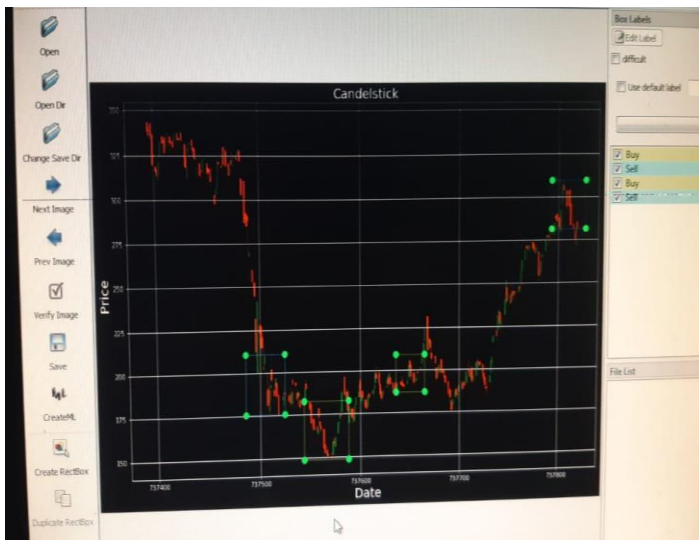


Fig -3: Labeling the pattern found using labelling software

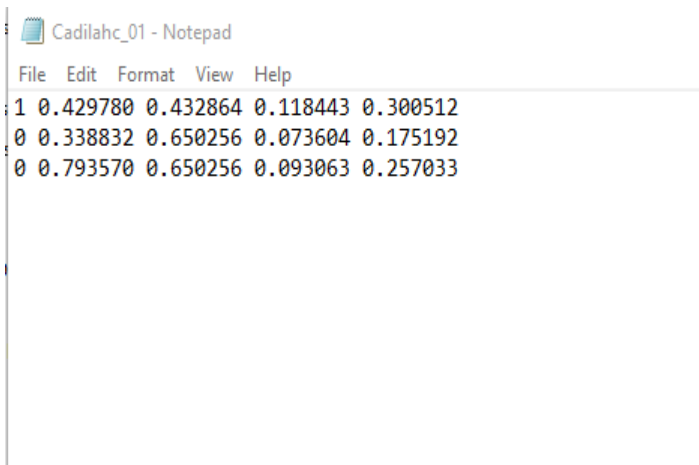


Fig -4: Pattern coordinates generated from Labeling software

**1.2 Candle Patterns:**

An asset’s price movement is displayed by candlestick. Candlestick charts are very popular components of technical analysis. They enable traders to interpret price information quickly that also from just a few price bars. Few pattern used are listed below

1. Inverse hammer
2. Morning star
3. Hanging man
4. Shooting star
5. Evening star
6. Falling three methods
7. Rising three methods
8. Bearish engulfing
9. A cup and handle

**1.3 Testing the model with Real time input:**

The chart of a real time quote is plotted from specific time till current time, then the image is saved and passed through the created model. It identifies Shooting star and Three white soldiers pattern as seen in the figure 5.



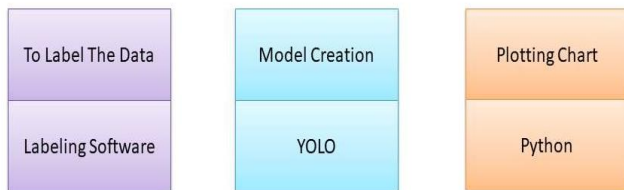
Fig -5: Patterns detected in real time chart

**1.2 Assumptions and Dependencies:**

The period of the chart plotted should be the same. The candle pattern formed should be of the same stretch, i.e., same time frame approximately. The pattern so formed has same size of candles.

## 2. Technology Used

LabelImg to label the data, python to plot charts and create and test models. Model is created using YOLO object recognition model.



## BIOGRAPHIES



Bachelors in E&TC Technology,  
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Currently pursuing my bachelors  
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Bachelors in Computer  
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**Fig -3:** Technology used

## 3. CONCLUSION

Different patterns can be used to train the model and which further can be used to predict the movement of the overall market. To train and test the data charts are plotted of different quotes and the images saved are annotated and the model is trained and tested. This model can reduce the efforts of humans and increase the accuracy to find patterns as and when a candle is being plotted. It can help newbie traders to know the market without much experience in the stock market.

## REFERENCES

- [1] LabelImg Software-  
<https://github.com/tzutalin/labelImg.git>
- [2] Serdar Berogul, Gunay Temur, Utku Kose, "YOLO Object Recognition Algorithm and "Buy-Sell Decision" Model Over 2D Candlestick Charts", pp. 9-10, 12-13, IEEE, 2020
- [3] Khatri, S.K.; Srivastava, A. Using sentimental analysis in prediction of stock market investment. In Proceedings of the 2016 5th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO), Noida, India, 7–9 September 2016; pp. 566–569.
- [4] Morris, G.L. Candlestick Charting Explained: Timeless Techniques for Trading Stocks and Futures: Timeless Techniques for Trading Stocks and Futures; McGraw Hill Professional: New York City, NY, USA, 2006.