

Rizubot Version 1.0 algorithm: How to read the price movements of Crypto Currency Using the API to find a good purchase price

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Abstract—CryptoCurrency has now spread its development as a medium of exchange and as a commodity that is traded 24 hours nonstop on various exchanges throughout the world. The basic nature of trading on cryptocurrency is how to obtain the lowest buying/price point and how to sell it at a higher price. This paper proposes a simple algorithm called rizubot to get a good buy position. Rizubot was coded from the API document shared by each Exchanges. In addition to the formula, we also provide a table with a list of exchanges and where we can obtain documentation for each exchange

Keywords—rizubot algorithm; API; CryptoCurrency; Exchanges;

I. INTRODUCTION

As the market is relatively new, existing works related to forecasting in this market is relatively limited [1]. This paper explores the relationship between API documentation shared by exchangers with the PHP programming language to determine the best purchase price.

This simple algorithm was developed by Rizky Parlita and was named the Rizubot algorithm. The essence of this algorithm is how a trader can always buy at a support price. How to read this price movement was previously submitted to the telegram group "Indonesian rizubot" [2].

II. LITERATURE

A. *CryptoCurrency*

Cryptocurrency is a peer-to-peer digital exchange system that does not have a central authority. Cryptography is used to generate and distribute currency units [3]. The digital cryptocurrency, Bitcoin, runs on an online decentralized network with no dependency on any government or legal entity as it relies heavily on peer-to-peer networking and cryptography to maintain its integrity [1]. A technology that underlies cryptocurrency is blockchain technology. This technology has advantages regarding security, trust, and decentralization. In blockchain technology there are groupings into six layer models, namely layer data, network layer, consensus layer, incentive layer, contract layer and application layer [4].

B. *Exchanges*

Exchanges is a place to trade or sell and buy various types of coins that are attached to them. Each exchange has a different list of coins. A list of several exchanges around the world can be seen in table 1

III. METHOD

There are 2 steps that need to be done to encode the Rizubot Algorithm to become a software application that is able to minimize price movements in realtime and to be able to determine quickly the lowest buying point in order to achieve greater profit expectations

A. *Steps before coding*

The steps to encode the rizubot from the algorithm to the application are as follows

1. find the API documentation address as in TABLE I
2. find the source code that might be in accordance with the API on the source code provider page such as github.com, planet-source-code.com or elsewhere
3. modify similar code or create the code yourself by looking at the API documentation

B. *Rizubot Algorithm Version 1.0*

The rizubot version 1.0 algorithm has six interrelated formulas as follows

$$\begin{aligned} \text{Highest Price} - \text{Lowest Price} &= \text{Range} & (1) \\ \text{Highest Price} - \text{Current Price} &= \text{Top Range} & (2) \\ \text{Current Price} - \text{Lowest Price} &= \text{Lower Range} & (3) \\ \text{Range} / \text{Lower Range} * 100\% &= \text{Percent of Range} & (4) \\ \text{Percent of Top Range} / \text{Range} * 100\% &= \text{Percent of Top Range} & (5) \\ \text{Percent of Low Range} / \text{Range} * 100\% &= \text{Percent of Lower Range} & (6) \end{aligned}$$

From all formulas, formula number 4 is the most important. By knowing what percentage of the range is from the lowest price at that time, we can find out the maximum profit potential that we can get when we trade in the current price range. When buying a good one, of course when a coin is at its lowest point, or the current price is the same as the lowest price.

This is indicated by the lowest value of the percent price equal to zero. And conversely, the highest selling time is of course when a coin is at its highest point, or the current price is the same as the highest price. This is indicated by the highest value of percent equal to zero.

However, even though this algorithm is already suitable to be used to accompany trading, further improvements will still need to be done. In this version there is still no added feature to detect whether a lower price can still occur even though the current price is the lowest price. In the next paper, we will discuss this.

IV. IMPLEMENTATION

The implementation in the form of rizubot application will appear as follows

A. Using Indodax Exchange API

Before starting coding we need to download the API document on the Indodax Exchanger [5].

High	Low	Last	% Range	% Top	% Low	Indodax
359	332	341	0	67	33	BTCDIR
807	750	754	0	93	7	ACTDIR
1.215	1.107	1.119	0	89	11	ADNDR
40	36	36	0	0	0	BCDIDR
3.130	2.701	2.780	0	82	18	BCHDIR
2.841	2.701	2.722	0	85	15	BTGDIR
2.390	2.221	2.222	0	99	1	BTSIDR

Fig. 1. Rizubot App's For Indodax Exchange



Fig. 2. Buy Signal on Rizubot App's For Indodax Exchange

The picture above shows us that BCDIDR Coins in Indodax Exchange have a range of 11%, this means that the maximum Profit amount that can be obtained on the current timeframe is 11% calculated from the lowest current price. Next for us to go to the Indodax Exchanger, we click the link on the right with the BCDIDR coin written on it.

B. Using Bittrex Exchange API

Before starting coding we need to download the API document on the Bittrex Exchanger [6].

BITTREX

No.	Market Name	Last	High	Low	Range	% Range	% Top	% Low	
129	BTC-POWR	0.00003136	0.00003280	0.00003106	0.00000174	6	83	17	BTC-POWR
130	BTC-PPC	0.00014051	0.00016993	0.00013700	0.00003293	24	89	11	BTC-PPC
131	BTC-PRO	0.00007956	0.00008970	0.00007956	0.00000914	11	100	0	BTC-PRO
132	BTC-PTC	0.00000271	0.00000333	0.00000251	0.00000082	33	76	24	BTC-PTC
133	BTC-PTOY	0.00000659	0.00000701	0.00000621	0.00000080	13	53	48	BTC-PTOY
134	BTC-QRL	0.00005450	0.00005820	0.00005295	0.00000525	10	70	30	BTC-QRL
135	BTC-QTUM	0.00088800	0.00092662	0.00088695	0.00003967	4	97	3	BTC-QTUM

Fig. 3. Rizubot App's For Bittrex Exchange



Fig. 4. Buy Signal on Rizubot App's For Bittrex Exchange

The picture above shows us that BTC-PRO Coins in Bittrex Exchanger have a range of 11%, this means that the maximum

Profit amount that can be obtained on the current timeframe is 11% calculated from the lowest current price. Next for us to go to the Bittrex Exchanger, we just click the link on the right with the BTC-PRO coin written on it.

To make it easier to read any coins that are good to buy, then using the PHP programming language where we use JSon_Encode and CURL, we create shortcuts in the form of buttons at the top of the table which when clicked will go to the Exchanges page on the coin.

BITTREX

- [BTC-CANN](#)
- [BTC-CLOAK](#)
- [BTC-DTB](#)
- [BTC-SALT](#)
- [ETH-DMT](#)
- [ETH-PRO](#)
- [ETH-SALT](#)
- [ETH-UKG](#)
- [USD-ETH](#)
- [USDT-BTG](#)
- [USDT-DGB](#)
- [USDT-NXT](#)
- [USDT-SC](#)

Fig. 5. Shortcut Buy Signal on Rizubot App's For Bittrex Exchange

For more convenience, all of our buy signals are sent to telegrams using telegram bots. Information sent via telegram bots is more detailed, namely regarding the percentage of maximum profit seen from the range, current price, highest price and lowest price.

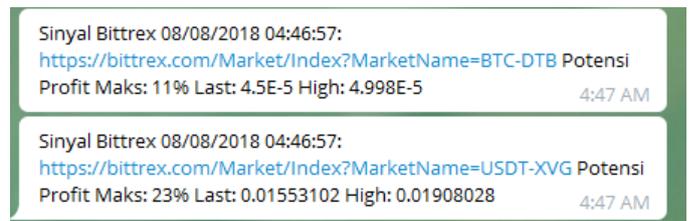


Fig. 6. Telegram Messages contain Buy Signal on Rizubot App's For Bittrex

C. Using Binance Exchange API

Before starting coding we need to download the API document on the Binance Exchanger [7]. Same as in indodax and bittrex. At Binance Rizubot walked on exactly the same principle as variations are given a different look. But still the principle is to buy when% low is equal to zero.

BINANCE

Bitcoin (USD-BTC) - \$ 6.333
1 BTC Indodax = Rp. 93.378.000,-

CVCBNB,8

No.	Market Name	Pair	Coin	Detail	Binance	Last	% Range	% Top	% Low
1	Cardano	BTC	ADA	detail	trade	0.00001782	4	58	42
2	AdEx	BTC	ADX	detail	trade	0.00003352	4	78	22
3	Aeternity	BTC	AE	detail	trade	0.00017990	6	80	20
4	SingularityNET	BTC	AGI	detail	trade	0.00000885	8	22	78
5	Aion	BTC	AION	detail	trade	0.00006710	11	82	18
6	Ambrosus	BTC	AMB	detail	trade	0.00002089	10	81	19
7	AppCoins	BTC	APPC	detail	trade	0.00001387	7	77	23
8	Ardor	BTC	ARDR	detail	trade	0.00001850	8	34	66
9	Ark	BTC	ARK	detail	trade	0.00011910	6	64	46
10	Aeron	BTC	ARN	detail	trade	0.00004912	5	76	24
11	AirSwap	BTC	AST	detail	trade	0.00001305	6	56	44
12	Basic Attention Token	BTC	BAT	detail	trade	0.00003447	7	32	68
13	Bitcoin Cash	BTC	BCC	detail	trade	0.09055700	3	45	55
14	Bitcoin Diamond	BTC	BCD	detail	trade	0.00172000	13	34	66
15	Bytecoin	BTC	BCN	detail	trade	0.00000029	7	0	100
16	BlockMason Credit Protocol	BTC	BCPT	detail	trade	0.00001547	12	75	25

Fig. 7. Rizubot App's For Binance Exchange

In addition to these three exchangers there are more than 200 exchangers worldwide. As for some of us, we have obtained the API documentation download address and some others have not yet obtained it. Table I shows the url pages where we can download the fire document on some exchangers.

TABLE I. API DOCUMENTATION ON SEVERAL EXCHANGERS [4]

No	Exchangers	Link API
1	ACX	support.acx.io/hc/en-us/articles/360006805794-API
2	AidosMarket	aidosmarket.com/api-docs
3	AllCoin	.allcoin.com/api_market/market
4	AltCoin Trader	.altcointrader.co.za/api/#/Checks
5	B2BX	docs.b2bx.exchange/
6	Bancor Network	support.bancor.network/hc/en-us/articles/360002262091-Price-Ticker-API
7	BarterDEX	docs.komodoplatform.com/barterDEX/barterDEX-API.html
8	BCEX	.bcex.ca/api_market/market
9	BiBox	github.com/Biboxcom/api_reference/wiki/home_en#1-readme
10	BigOne	open.big.one/docs/api.html
11	Binance	github.com/binance-exchange/binance-official-api-docs
12	Bisq	markets.bisq.network/api/
13	Bit2c	bit2c.co.il/home/api
14	BitBank	docs.bitbank.cc/
15	BitBay	bitbay.pl/en/api-private bitbay.net/en/api-public
16	BitBNS	Belum ketemu
17	BitcoinToYou	docs.google.com/document/d/1dlaSkY3oRDYrWVYJsd_titV2HkXPvOiO3mXnVD_Zxl4/edit#heading=h.qo1o2yxbvsh
18	BitcoinTrade	apidocs.bitcointrade.com.br/
19	BiteBTC	bitebtc.com/api
20	Bitex.la	bitex.la/developers
21	BitFinex	docs.bitfinex.com/docs
22	BitFlip	bitflip.li/apidoc
23	BitFlyer	lightning.bitflyer.com/docs?lang=en lightning.bitflyer.com/docs/playground?lang=en chainflyer.bitflyer.jp/API/docs?lang=en
24	BitForex	github.com/bitforexapi/API_Docs/wiki
25	BitHesap	github.com/bithesap/api
26	BitHumb	.bithumb.com/u1/US127
27	Bitlish	bitlish.com/api
28	BitMarket	.bitmarket.net/docs.php?file=api_public.html github.com/bitmarket-net/api
29	Bitmart	github.com/bitmartexchange/api-docs
30	Bitmaszyna	bitmaszyna.pl/#
31	Bitonic	bitonic.nl/en/api
32	Bits Blockchain	.bitsblockchain.net/pages/api bitonic.nl/api/0/bitonic-oauth
33	Bitsane	bitsane.com/help/api
34	Bitso	bitso.com/api_info
35	Bitstamp	.bitstamp.net/api/
36	Bitstamp (ripple Gateway)	.bitstamp.net/api/
37	Bittrex	support.bittrex.com/hc/en-us/articles/115003723911
38	Bittylicious	help.bittylicious.com/index.php/Do_you_have_an_API%3F
39	Bit-Z	.bit-z.com/api.html
40	BL3P	github.com/BitonicNL/bl3p-api/
41	Bleutrade	bleutrade.com/help/API

No	Exchangers	Link API
42	Braziliex	braziliex.com/exchange/api.php
43	BTC Markets	github.com/BTCMarkets/API
44	BTC Trade UA	docs.google.com/document/d/1ocYA0yMy_RXd561sfG3qEPZ80kyll36HUxvCrE5GbhE/edit
45	BTC-Alpha	btc-alpha.github.io/api-docs/
46	BTCBOX	btcboxsupport.zendesk.com/hc/ja/articles/360001886333
47	BTCC	btcc-api.netlify.com/
48	BtcTrade.im	-
49	BtcTurk	github.com/BTCTrader/broker-api-docs
50	Buda	api.buda.com/
51	BX Thailand	bx.in.th/info/api/
52	C2CX	api.c2cx.com
53	C-CEX	-
54	CEX.IO	cex.io/cex-api
55	cfindex	-
56	ChaoEX	-
57	Coinbase Pro	docs.pro.coinbase.com/
58	Coinbe	coinbe.net/strona/api
59	CoinBene	github.com/Coinbene/API-Documents-CHN/wiki/0.0.0-Coinbene-API%E6%96%87%E6%A1%A3
60	CoinCorner	api.coincorner.com/
61	Coindeal	coindeal.com/info-api
62	CoinEgg	.coinegg.com/explain.api.html
63	CoinEx Market	api.coinexmarket.io/
64	CoinExchange	coinexchangeio.github.io/slate/
65	CoinFalcon	docs.coinfalcon.com/
66	Coinfloor	github.com/coinfloor/api
67	Coingi	coingi.docs.apiary.io/#
68	Coinhub	coinhub.io/api
69	CoinMate	coinmate.io/developers
70	Coinnost	.coinnost.co.kr/doc/intro.html
71	Coinone	doc.coinone.co.kr/
72	Coinrail	-
73	Coinrate	coinrate.net/api/exchange-info
74	Coinroom	coinroom.com/public-api
75	CoinsBank	-
76	Coinsquare	-
77	Coinsuper	github.com/coinsuperapi
78	CoinTiger	github.com/cointiger/api-docs-en/wiki
79	Coinut	github.com/coinut/api/wiki
80	COSS	-
81	C-Patex	c-patex.com/documents/api_v2
82	Crex24	docs.crex24.com/trade-api/v2/
83	CRXzone	.crxzone.com/dev/trade
84	CryptoBridge	-
85	Cryptohub	cryptohub.online/api/
86	CryptoMarket	developers.cryptomkt.com/es/
87	Cryptomate	cryptomate.co.uk/api/
88	Cryptonex	cryptonex.org/api
89	Cryptopia	support.cryptopia.co.nz/csm?id=kb_article&sys_id=a75703dcd9130084ed147a3a9619bc
90	DDEX	docs.ddex.io/
91	DEx.top	github.com/dexDev/dexAPI
92	Dgtmarket	apidocs.dgtmarket.com/#throttling
93	DigiFinex	github.com/DigiFinex/api
94	DOBI trade	api.dobitrade.com/
95	DragonEX	github.com/Dragonexio/OpenApi/tree/master/docs
96	DSX	apimatic.io/apidocs/dsx/v/2_0#/http/getting-started
97	EtherDelta (ForkDelta)	-
98	Ethfinex	.ethfinex.com/api
99	ExcambrioRe	-

No	Exchangers	Link API
	x	
100	Exmo	exmo.com/en/api
101	Exrates	-
102	ezBtc	.ezbtc.ca/docs-public/api
103	Fatbtc	github.com/fatbtc/fatbtc-api-rest
104	fex	-
105	FreiExchange	-
106	Gate.io	gate.io/api2
107	Gatecoin	gatecoin.com/api/
108	Gatehub	-
109	Gemini	docs.gemini.com/rest-api/#introduction
110	GOPAX	.gopax.co.kr/API
111	GuldenTrader	exchange.guldentrader.com/api
112	HADAX	github.com/huobiapi/API_Docs_en/wiki
113	Heat Wallet	heatwallet.com/api/
114	HitBTC	api.hitbtc.com/
115	Hotbit	.hotbit.io/support?page=api
116	Huobi	github.com/huobiapi/API_Docs_en/wiki
117	IDAX	-
118	IDEX	github.com/AuroraDAO/idx-api-docs
119	Independent Reserve	.independentreserve.com/API
120	Indodax	indodax.com/downloads/BITCOINCOID-API-DOCUMENTATION.pdf
121	InfinityCoin Exchange	github.com/coingecko/cryptoexchange/issues/281 but not found
122	Iquant	From https .cryptocurrencyexchangelist.info/iquant-review, The Exchange does not have an API
123	ISX	isx.is/api-docs.php
124	itBit	api.itbit.com/docs
125	Koineks	koineks.com/info/api koineks.com/ticker
126	Koinex	koinex.in/api/ticker
127	Koinim	This company haven't API. From GitHub: github.com/cemkiy/koinim-python-api/blob/master/splinter_process.py (Python) github.com/computeus/koinim_price (Ruby)
128	Korbit	apidocs.korbit.co.kr/
129	Kraken	.kraken.com/en-us/help/api
130	Kucoin	kucoinapidocs.docs.apiary.io/#
131	Kuna	kuna.io/documents/api
132	Kyber Network	developer.kyber.network/docs/APIs
133	LakeBTC	.lakebtc.com/s/api_v2
134	LATOKEN	From blog.latoken.com/latoken-exchange-a-high-liquidity-destination-for-new-tokens-94a7fd4d4fee, they said that Trading API ready to go public (13 Jul 2018)
135	LBank	github.com/LBank-exchange/lbank-official-api-docs
136	LEOxChange	leoxchange.com/assets/downloads/REST%20API%20Documentation%20(LEOxChange).pdf
137	Liqui	liqui.io/api
138	LiteBit.eu	api.litebit.eu/
139	LiveCoin	.livecoin.net/api/public .livecoin.net/api/examples
140	LocalTrade	From .cryptocurrencyexchangelist.info/localtrade-review, The Exchange does not have an API
141	Luno	.luno.com/id/api
142	MBAex	index.bithumb.com/marketStatus/coinmarketcapAPI.php?api=page&callback=jQuery32108221379704603433_1513300107571&_=1513300107572
143	Mercado Bitcoin	.mercadobitcoin.com.br/api-doc/

No	Exchangers	Link API
144	Mercatox	mercatox.com/public mercatox.com/docs
145	Nanex	support.nanex.co/hc/en-us/categories/360000176334-API support.nanex.co/hc/en-us/articles/360001802773-Market-Ticker
146	Negocie Coins	.negociemoins.com.br/documentacao-api .negociemoins.com.br/documentacao-tradeapi
147	Neraex	neraex.pro/docs/api
148	Nocks	docs.nocks.com/ github.com/nocksapp/nocks-sdk-php
149	Novaexchange	novaexchange.com/remote/faq/
150	OEX	From https .cryptocurrencyexchangelist.info/oex-review, The Exchange does not have an API. And from github.com/coingecko/cryptoexchange/issues/354 (12 Mar 2018), not found yet.
151	OKCoin International	support.okcoin.com/hc/en-us/sections/360000167711
152	OKCoin.cn	.okcoin.cn/rest_api.html
153	OKEx	github.com/okcoin-okex/API-docs-OKEx.com
154	OOBTC	docs.api.ooobtc.com/
155	OpenLedger DEX	github.com/coingecko/cryptoexchange/issues/208
156	OTCBTC	github.com/otcbtc/otcbtc-exchange-api-doc
157	Ovis	From .cryptocurrencyexchangelist.info/ovis-review, The Exchange does not have an API
158	Paribu	From github.com/ccxt/ccxt/issues/1614 (30 Jan 2018), a people said that Paribu is recent exchange from Turkey opened in 2017. They don't have api yet except basic ticker endpoint for BTC/TRY. .paribu.com/ticker .paribu.com/endpoint/state
159	Paymium	github.com/Paymium/api-documentation
160	Poloniex	poloniex.com/support/api/
161	QBTC	.qbtc.com/wiki
162	Qryptos	github.com/ccxt/ccxt/blob/master/php/qryptos.php
163	QuadrigaCX	.quadrigacx.com/api_info
164	Quoine	.quoine.com/api/?lang=id
165	Radar Relay	developers.radarrelay.com/sra/
166	Rfinex	-
167	RightBTC	.rightbtc.com/api/public/
168	Ripple China	-
169	RippleFox	developers.ripple.com/rippled-api.html
170	RuDEX	rudex.org/
171	Simex	rdr.io/cran/simex/api/
172	Sistemkoin	sistemkoin.com/api/market/ticker
173	SouthXchange	.southxchange.com/Home/Api
174	Stellar Decentralized Exchange	github.com/stellarterm/stellarterm
175	Stellarport	-
176	StocksExchange	help.stocks.exchange/api-integration/public-api
177	Stronghold	19yw4b240vb03ws8qm25h366-wpengine.netdna-ssl.com/wp-content/uploads/securing-the-api-stronghold.pdf
178	Switcheo Network	switcheo.network/whitepaper_v1.pdf
179	TDAX	api-docs.tdax.com/alternative-apis/public/currencies.html?q=sum
180	The Rock Trading	api.therocktrading.com/doc/v1/index.html
181	Tidebit	.tidebit.com/documents/api/guide

No	Exchangers	Link API
182	Tidex	tidex.com/exchange/public-api
183	Token Store	docs.api.token.store/#docs/summary/summary
184	Tokenomy	github.com/tokenomy/Tokenomy-Exchange-API-Documentation
185	TOPBTC	documenter.getpostman.com/view/2597586/topbtc/RW1bmyPW
186	Trade By Trade	wex.nz/tapi/docs
187	Trade Satoshi	tradesatoshi.com/Home/Api
188	TradeOgre	tradeogre.com/help/api
189	Tripe Dice Exchange	anxv2.docs.apiary.io/#anxv3.docs.apiary.io/
190	Tux Exchange	tuxexchange.com/docs
191	Upbit	docs.upbit.com/reference#%EC%9E%85%EA%B8%88-%EB%A6%AC%EC%8A%A4%ED%8A%B8-%EC%A1%B0%ED%9A%8C
192	Vebitcoin	github.com/VebitcoinTeknoloji/tickers-api
193	Waves Decentralized Exchange	github.com/wavesplatform/waves-api
194	WEX	wex.nz/api/3/docs#main
195	xBTCe	github.com/SoftFx/TTFixClient/blob/master/doc/Soft-FX%20FIX%20API%201.61.pdf
196	YoBit	yobit.net/en/api/
197	Zaif	corp.zaif.jp/api-docs/trade-api/
198	ZB.COM	.zb.com/i/developer
199	Zebpay	support.zebpay.com/hc/en-us/articles/115004228609-Zebpay-APIs
200	Coin market cap	pro.coinmarketcap.com/api/v1#section/Authentication

Table I shows a set of exchanges or markets for trading crypto commodities. Each exchange has a fire document to be encoded by the programmer into an application that is able to read crypto trading price movements in realtime, so that the programmer can make the algorithm determine the best buying point using the rizubot algorithm.

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