



S3NTIGRAPH WHITEPAPER

Predictive insights using Blockchain, Artificial Intelligence and
Cognitive analysis

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ABSTRACT

S3ntigrapH is a decentralized system that provides predictive insights based on emotion data obtained by analyzing twitter hashtags using IBM's Watson and an internal algorithm. The system can analyze equity markets, various review systems, social media, politics, healthcare, and security via related twitter hashtags.

THE PROBLEM

There are numerous platforms and blogs dedicated to social engagements, daily news and events, politics and so on. These platforms usually attract active users that interact and react to headlines or posts via comments. There has been no obvious tools or methods for a subscriber or follower to gauge the overall sentiments of these engagements. In simple speak, how can an event planner for instance, gain insights of a scheduled event based on user engagements with that event?

It is publicly known that Twitter is one of the major sources of obtaining real life information amongst celebrities, the media, politicians, and many other groups and interests. Unfortunately, capturing the overall emotions or sentimental trend of all the tweets associated with that hashtag is currently unavailable.

THE SOLUTION

We introduce S3ntigrapH! This application leverages the cognitive strengths of IBM Watson to analyze these tweets, pass them through a private algorithm (to be patented, so not publicized), and provides an index (sentigraph index), that shows the overall emotional score or rating of that hashtag. This index and other metadata is saved to the blockchain, and can be retrieved later for the purposes of providing predictive insights based on some regression analysis. News casters, event organizers for artistes, seminars, politicians, messaging systems, criminology, TSA/Security, Universities, Health care systems, and many others are useful use cases.

S3ntigrapH is the first decentralized application to ever synthesize massive scale, cumulative AI analysis from Twitter in conjunction with blockchain. We seek to be the "gold standard" for all real time ratings, reviews and predictive insights.

WHY BLOCKCHAIN

Tone coordinates returned from IBM Watson Tone Analyzer is analyzed using a private algorithm, which eventually computes the si. The si along with other metadata such as

geolocation data and timestamp is persisted to the blockchain. We use the blockchain to eliminate intermediation. No one entity should own the si.

TARGET USER (PERSONA) & USE CASE

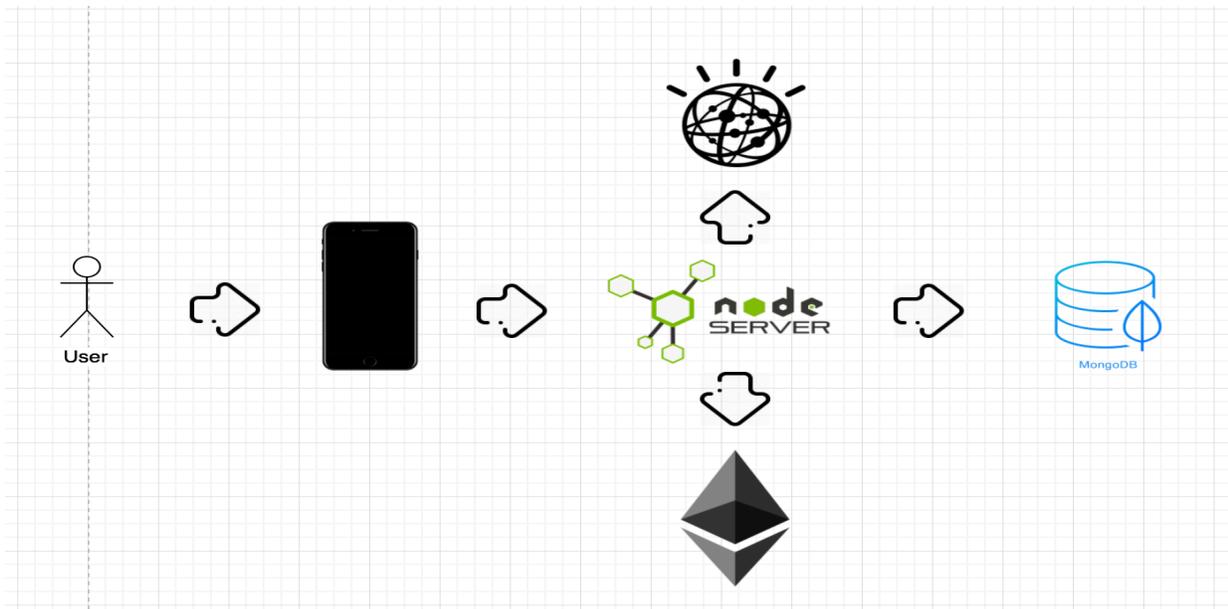
Any individual or groups of persons interested in finding out the real-time outcome of a particular event (likely or unlikely), based on community sentiments surrounding that event. For instance, a music director or manager wants to know if a music concert is favored by an artist's fans. Another example is an investor seeking to analyze and thus predict the future performance of an Apple stock [NASDAQ: \$AAPL], which also has a Twitter hashtag - #AAPL.

For the MVP, S3ntigraph will be a decentralized mobile application (iOS/Android/Mobile Web) that will analyze any twitter hashtags entered by the user. The user will be required to be authenticated into the application in order to use it. The user will also have a Waves wallet. Today, as of this writing, we have minimally functional web application on TestRPC.

THE PLATFORM

There is currently an Ethereum Smart Contract to interface between user client inputs (web or mobile browsers) and the blockchain. A Node JS application serves the User Interface to the browser for the user's interaction. Each hashtag entry asynchronously pings IBM Watson's Tone Analyzer API, which returns a 5-vector sentiment coordinate. We use Mongo to store Watson's feedback, perform some off-chain calculations and finally persist the si to the blockchain. si is a value representation of an arbitrary hashtag's coordinates, computed based on an algorithm. si indicates the sentiment level of tweets corresponding to the hashtag. Finally, the user can see the overall trend as a chart plots si against time, t and also the overall rating.

The following diagram is a brief synopsis of the platform's ecosystem:



Description:

- Via the web/mobile app, the authenticated user enters a Twitter hashtag to analyze.
- On submission to the Node server, an asynchronous request is sent to Tone Analyzer API to fetch JSON 5-vector coordinate.
- Via an off-chain algorithm, si is computed.
- si , coordinates, initial utterance/string, timestamp and other geo-related data is persisted to the database.
- Every 1 hour, we bulk-write data to the blockchain to save on “gas” should we have immediately written to the blockchain after every user entry.
- When user gets authenticated, the app fetches pre-persisted sentigraph index, coordinate, string, and timestamp data from the blockchain.
- This data is then presented to the user via a trend chart or gauge

DATA SOURCE

All Twitter hashtags.

ALPHA PRODUCT

We have released a functional alpha version that allows the user analyze any hashtag. The feedback from the analysis (not shown here) can be useful in shaping the user’s decision on the next actionable step.



BUSINESS MODEL (COIN USE)

Graph is the utility token for S3ntigraphH. In order to use the application, a user needs to register and log in. Authenticated users need to have Graph tokens in their Waves wallet in order to query the system. Each hashtag entered expends some Graph tokens in order to analyze and generate the indexes and charts. The tokens expended is slightly greater than the cost to hit the Watson API per request. In a nutshell, the user pays for the query made.

PURCHASING GRAPH (THE FAUCET)

In order to make a call to Watson API with twitter data, the user needs to purchase Graph. The S3ntigraphH application offers a faucet that allows authenticated users purchase up to 10, 000 Graph, which is also the account limit. 1 Graph will permit up to 10 calls. The application operates via a Burning Mechanism, in which case the purchase of Graph tokens reduces (burns) the amount of token supply.

7% of all tokens will be reserved for the faucet. When the faucet balance reaches a minimum threshold (of 1000), new Graph tokens equaling the amount of burnt tokens will be released to the faucet.

TOKEN SALE

Token sale is the process of raising funds for the development of the platform by selling Graph (in this context), the S3ntigraphH token. Graph is a Waves-based token. We have made this choice to not only foster the utilization of cross-platform utilities but to have a lean decentralized application void of Smart Contracts for the sole purpose of generating ERC-20 tokens. Graph will be listed on Waves DEX, and it has now been verified by the Waves developers. The ID for Graph is: 13QuhSAkAueic5ncc8YRwyNxGQ6tRwVSS44a7uFgWsnk. Be careful not to trade or deal any Graph with a different ID.

We “outsource” our tokenization functionality to Waves, which is what it was made to do; generating tokens for any platforms whilst being agnostic to it. We have also noticed cases with multiple reissuance of ERC20 tokens as a result of bugs in the Smart Contract. There are also cases of missing tokens due to these errors. This has begun to present negative impressions to willing crypto investors, especially those that favor the Ethereum platform. With Graph, these flaws will be totally non-existent. One can imagine how the Ethereum blockchain will smoothly run if it had 50% less Smart Contract tokens for ERC20 coins.

Contributions will be made via any wallets with BTC or ETH. For contributions with Waves, one requires a Waves paper wallet, preferably from waveswallet.io. Post the token sale event, Graph tokens will be issued to corresponding investors at their Waves wallet (those without a Waves paper wallet will be required to create one, preferably at waveswallet.io prior to contributing). Further instructions regarding actual contributions will be released on the fundraiser page of the website.

Token Distribution Summary:

- 70% of contribution for business expansion, operations, hiring resources, infrastructure
- 20% to the S3ntigraphH team to offset prior operation costs, compensation
- 10% to organize seminars, events, other social responsibility programs.

These are subject to change, and will be announced accordingly.

We expect to distribute Graph within 3 weeks of the token sale completion.

GRAPH (TOKEN)

Graph is the official token for S3ntigraphH. It is a Waves-based token and it is approved by the Waves team with a green ticker. The total supply is 20 million tokens generated, distributed as follows:

- 40% - Public
- 4% - Company
- 5% - Team
- 50% - Private sale
- 1% - Faucet

FUTURE OPPORTUNITIES

It is quite apparent that the opportunities this solution would expose are bountiful. In politics, debates, promises and legislative actions can be gauged by the resultant cumulative sentigraph index (csi) of the citizens. In medicine and psychiatry, for instance, medical diagnosis and patient care can be tested for their expediency by the resultant csi of the patients.

Also, merging sentiments from different platforms like Facebook, Twitter and LinkedIn, wearables, sports, criminology, psychology, TSA/border security and so on, are areas we can extend to. Again, the opportunities abound and may not be completely exhausted.

PRODUCT ROADMAP

