e-ISSN: 2582-5208

International Research Journal of Modernization in Engineering Technology and Science

(Peer-Reviewed, Open Access, Fully Refereed International Journal)

Volume:05/Issue:10/October-2023 Impact Factor- 7.868 www.irjmets.com

CRYPTO ALERT SYSTEM USING BOLT IOT

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ABSTRACT

The emergence of crypto currency has sparked an interesting debate on the future of financial transactions. Post-COVID, there will be unbelievable advancements in the most popular and promising technology, cryptocurrency particularly Cryptos, as it is more valuable than any form of cryptocurrencies. Our work is about Crypto price alert system using bolt Internet of Things (IOT) and Blockchain. In this research paper, we will be writing a python program that checks the current price of the Crypto and sends an alert if the current price of the Crypto is higher than the set selling price. The program checks the current price of Cryptos whenever the price of Cryptos is updated. And at that same time it compares the current price with the Crypto price that has been set as selling price. It alerts through buzzer, email and message. For this we use Bolt Internet of Things (IOT) module and ubuntu software for writing program in python.

Keywords: Cryptos, Bolt, Internet Of Things, Python, Blockchain, Tokens, Nonce, Cryptocurrency.

I. INTRODUCTION

A device or software is said to be smart when it is able to send or receive data (i.e. able to communicate) when it is connected to the internet. The Internet of Things (IOT) refers to connecting devices to the internet and making them interactive. Cryptocurrency is nothing but a virtual currency and its usage is similar to the currencies that we use in our day to day life. Cryptocurrencies are secured by cryptography, (a technique used for secure transactions) which makes impossible duplicating Cryptos and using the same coin twice. In short, blockchain is a technology that allow for secure payments online. The transaction details of the users are represented by ledger entries inside the software. The first blockchain-based cryptocurrency was Crypto, which still remains the most popular and the most valuable. The concept of Internet of Things helps to find the value of Crypto during multiple transactions by using Bolt Internet of Things. So, the basic idea of this project is to alert the individuals regarding the cryptocurrency Crypto status through buzzer. In section 2 we aim at defining a scenario and naming different components of the system and explaining system architecture. In section 3 our focus is on the python code and its work flow. In section 4, we intend to highlight the system arrangement and present the results obtained from the process before concluding.

II. METHODOLOGY

A customer uses online trade transactions of cryptocurrency, in the form of Cryptos. The price of the Crypto keeps changing so it's highly impossible for the customer to continuously monitor the value of Crypto. So, implementation of the Crypto alert system is necessary. The system monitors the value of Crypto every 30 seconds and checks with the selling price set by customer. If the value of Crypto increases, it sends an alert message to the customer in the form of buzzer.

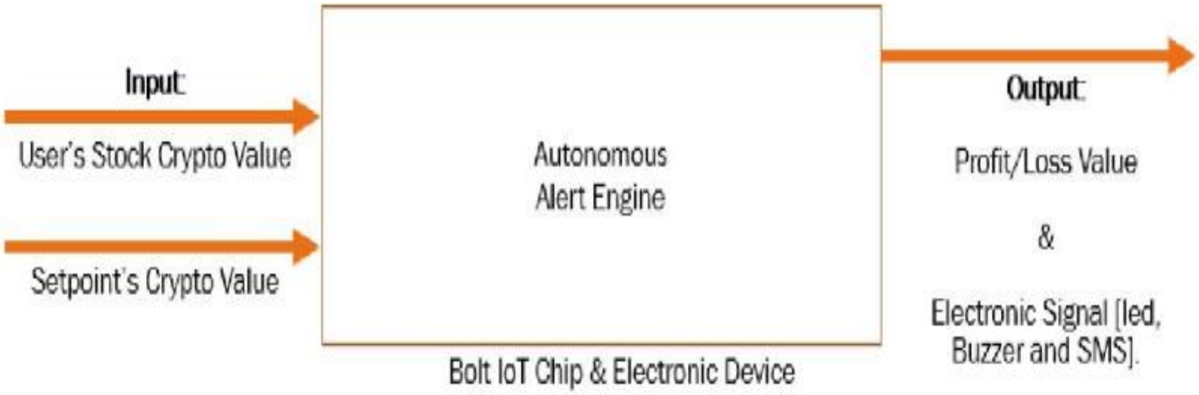

Input
User's Stock Crypto Value
Setpoint's Crypto Value
Autonomous
Alert Engine
Bolt IoT Chip & Electronic Device
Output
Profit/Loss Value
&
Electronic Signal [led, Buzzer and SMS].

Figure 1: Input-Output of Alert System

III. REQUIREMENTS

System Components

a) Bolt Wi-Fi Module

Connects to the Bolt Cloud out of the box, comes with General Purpose Input/output (GPIO), ADC, and Universal Asynchronous Receiver Transmitter, 12C and Serial Peripheral Interface (SPI) via Arduino Adapter.

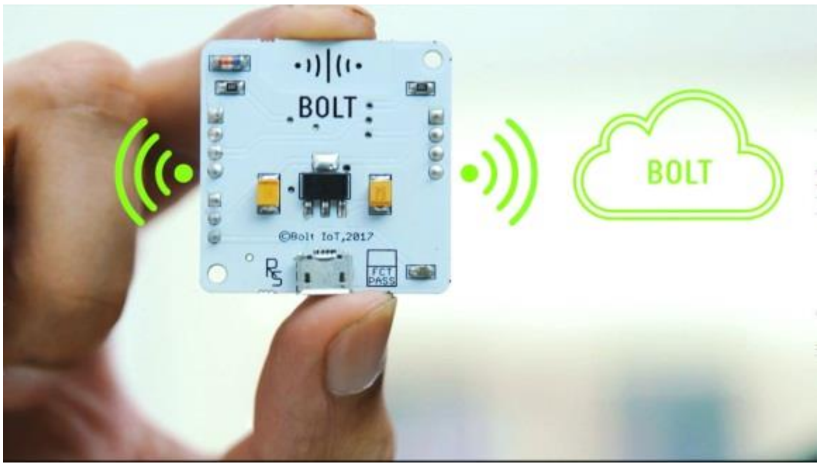


Figure 2: Wifi Module Bolt IOT

b) Universal periodical machine:

A toMicro-Universal periodical machine Cable Micro Universal periodical machine lines are specifically finagled for comity with Android bias, enabling both charging and data synchronization. These lines are designed to handle data and power transmission in Universal periodical machineSuper-speed operations.

c**) male/ female Jumper Cables** :

A connecting jumper wires is an electrical wire, or a bunch of cables with a leads or pin named as male-male and male-female pins is normally used to interconnect the components with bread board without soldering.

Figure 3: Jumper wire

d) Buzzer:

When voltage is applied, this buzzer emits a distinctive buzzing sound, making it a vital element in alert systems.

Figure 4: Buzzer

e) Software Apps and Online Services:

Bolt Internet of effects Cloud and Library - Microsoft Visual Studio Code - Twilio and Mailgun

IV. PROJECT IMPLEMENTATION

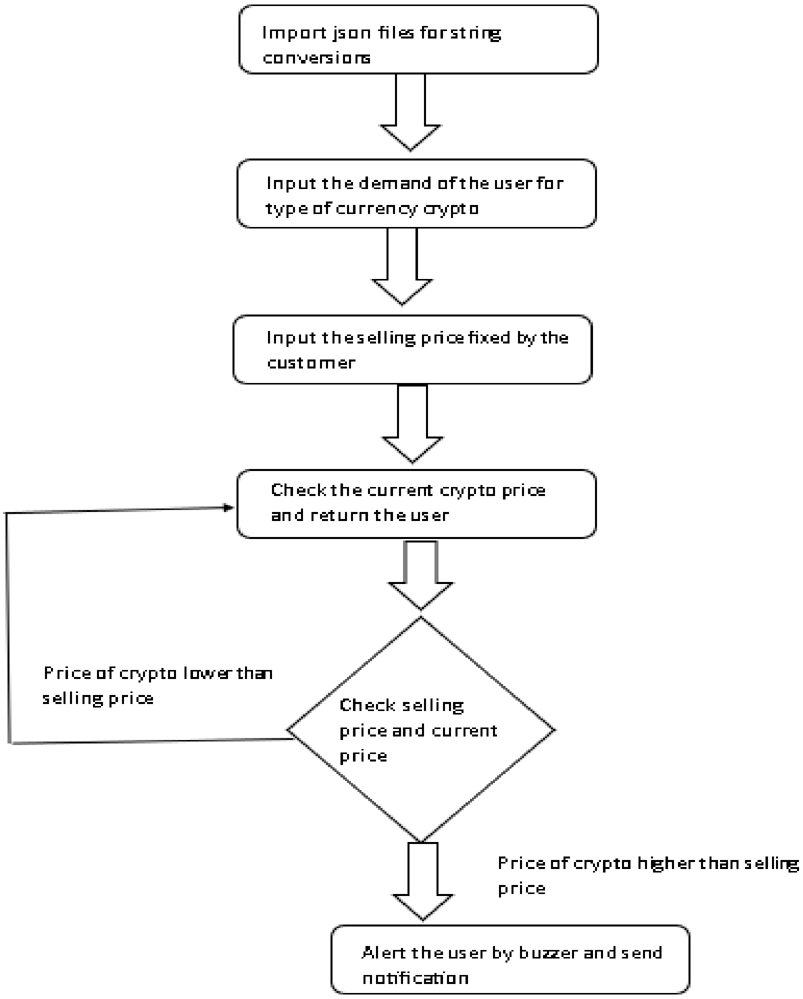

Import json files for string conversions
Input the demand of the user for type of currency crypto
Input the selling price fixed by the customer
Check the current crypto price and return the user
Price of crypto lower than selling price
Check selling price and current price
Price of crypto higher than selling price
Alert the user by buzzer and send notification

Figure 5: Flowchart of System

Hardware implementation :

Implementing the hardware aspect of a cryptocurrency alert system using Bolt IoT requires setting up and connecting the essential components. Start by connecting the Bolt IoT Wi-Fi module to your Wi-Fi network and powering it up. This module will act as the interface between your system and the cloud platform. Ensure that the module has a stable internet connection, which is vital for real-time data retrieval.

Additionally, consider any specific hardware requirements related to your project goals. If you plan to include environmental sensors for additional data, connect these sensors to the Bolt IoT module as per their specifications. For instance, you might incorporate temperature and humidity sensors if you want to monitor and trigger alerts based on environmental conditions. Depending on your project's complexity, you may also need additional components like a power supply or a microcontroller to support your hardware setup. These components will provide the foundation for your cryptocurrency alert system and enable it to collect the necessary data from the internet and any connected sensors.

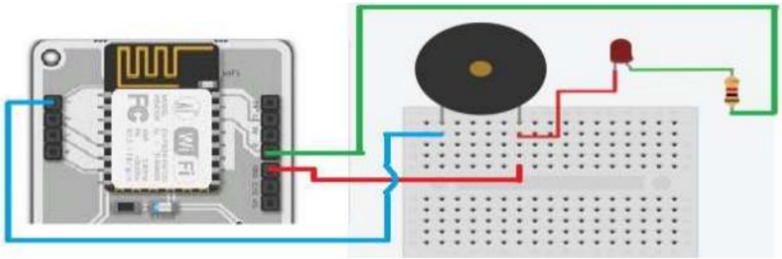
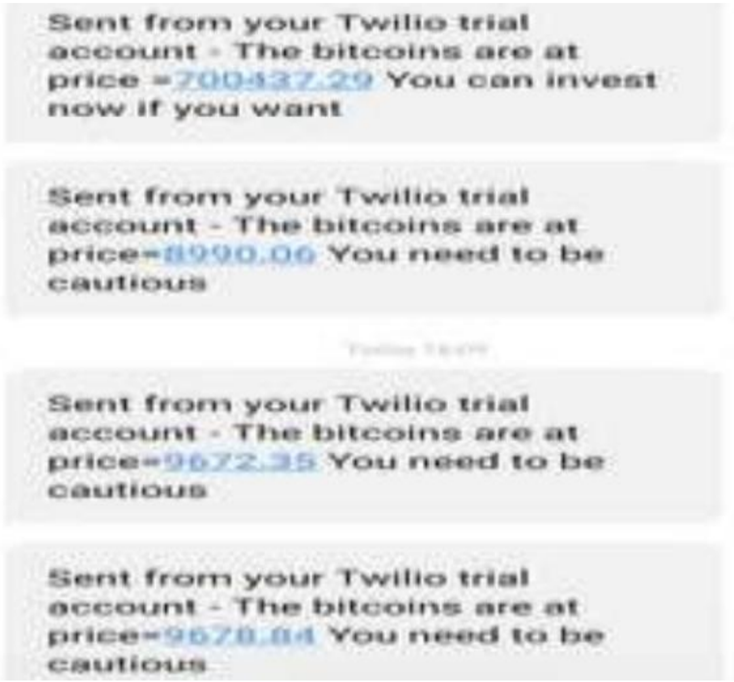


Figure 6: hardware setup

Software implementation:

The software implementation of a cryptocurrency alert system using Bolt IoT involves writing code, data integration, and notification setup. Begin by selecting a suitable programming language, often Python, for its simplicity and extensive libraries. Write code to make HTTP requests to a cryptocurrency data source, such as the CoinGecko API, to retrieve real-time price data. Parse the JSON response to extract the relevant information, which typically includes cryptocurrency prices.

Define the alert conditions in your code, specifying the thresholds or criteria that trigger alerts. These conditions are critical as they determine when the system should send notifications. Once an alert condition is met, integrate a notification service like SendGrid for email alerts or Twilio for SMS notifications. Set up the code to send notifications containing relevant information, such as the cryptocurrency's current price or the condition that triggered the alert.



Sent from your Twilio trial account - The bitcoins are at price =700437.29 You can invest now if you want

Sent from your Twilio trial account - The bitcoins are at price=8990.06 You need to be cautious

Sent from your Twilio trial account - The bitcoins are at price=9672.35 You need to be cautious

Sent from your Twilio trial account - The bitcoins are at price=9678.84 You need to be cautious

Figure 7: Twilio for SMS notifications

To ensure the system operates continuously, implement a loop in your code that repeatedly checks cryptocurrency prices. However, it's essential to introduce a sleep timer to prevent excessive API requests, which can lead to rate limiting or other issues. This loop allows your system to run continually and respond promptly to changes in cryptocurrency prices.

Testing and debugging are crucial phases in the software implementation. Verify that the code fetches data correctly, that the alert conditions trigger as expected, and that notifications are sent accurately. After successful testing, you may set up scheduling using tools like cron jobs on Linux or Task Scheduler on Windows to automate the execution of your code at regular intervals.

Once you're satisfied with the software's functionality, deploy the system on your chosen hardware, which could be a Raspberry Pi, a dedicated server, or any suitable device. Regularly monitor the system to ensure it operates without issues and consider implementing error handling and logging for troubleshooting purposes. The specific implementation details, code, and configurations will depend on your chosen programming language, data source, notification method, and any additional features you want to include in your cryptocurrency alert system.

V. RESULTS AND DISCUSSION

Your hardware setup is now complete, allowing you to send alert messages through a buzzer when the price of Bitcoin exceeds your predetermined selling price. The devices are connected as per the instructions, and the software setup in the Bolt Cloud platform is ready. As a result, users will be alerted using the buzzer when

Bitcoin's price surpasses the selling price threshold. This hardware-software integration ensures real-time notifications, enhancing the functionality of your cryptocurrency alert system.

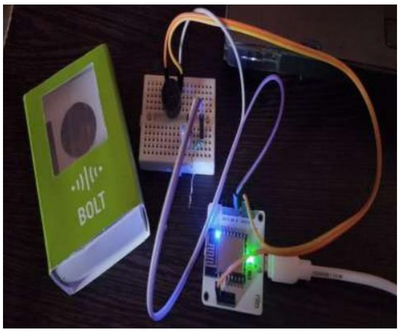


Figure 8: Final Setup

VI. CONCLUSION

Our project's fundamental concept revolves around notifying individuals about the status of the cryptocurrency Crypto through a multifaceted approach, which includes the use of a buzzer, text messages, and email alerts. Crypto is poised to reign as the primary mode of online payments in the near future. In fact, it has already garnered substantial interest and investments from Data Scientists and various savvy investors in developed nations, Cryptocurrency holds the promise of shaping the future of financial transactions. To excel in trading and achieve success in Crypto-based transactions, it is imperative for traders to remain vigilant and well-informed.

VII. REFERENCES

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