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Arduino Based Crypto Currency Tracker and Display

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Abstract: *The popularity of cryptocurrency has sky rocketed in the last decade or so. By 2022, there will be over 300 million users worldwide, with 2 crore cryptocurrency owners in India. From a white paper to a market value in the hundreds of billions of dollars, cryptocurrency has come a long way. Although cryptocurrency appears to be a futuristic technology, it has and will continue to revolutionise the way we store money, pay for goods and services, and conduct business. The main goal is to have a dedicated, low-cost device that will allow us to avoid constantly checking websites, apps, email, developing scripts, and so on to monitor coin price fluctuations. Due to the millions of users who are constantly looking for prices, we created a small desktop device called the 'Arduino Based Cryptocurrency Tracker and Display,' which allows us to check prices instantly and is portable.*

Key Words: *Bit Coin, Cryptocurrency, Tracker and Display.*

1. INTRODUCTION:

Crypto currency refers to a digital or virtual currency [1] that is protected by cryptography. It is related to bitcoin. Bitcoin is a completely virtual currency that can be converted into cash by using a third-party exchange broker[1]. There are numerous Crypto Currencies on the market, and keeping track of their prices is critical because we can lose or gain money in a matter of seconds. Scrolling through various websites and comparing prices takes time and can result in a loss or gain. To address this issue, we created a tiny dedicated device that constantly describes the prices of various crypto currencies and reduces the time we spend tracking them. We only needed two pieces of hardware to build a cryptocurrency price tracker: an internet-capable microcontroller to collect data and a screen to display it. We attempted to find the best solution in terms of usability and cost. The first option, given our primary goal of having a device with a small form factor that could sit on our desks, was to display the price data on an OLED screen. We need software that can query price data from dedicated servers and control the OLED screen to display the retrieved information**.**

2. LITERATURE REVIEW:

Abraham J et al.[2], presented a method for forecasting Bitcoin and Ethereum price changes using Twitter and Google Trends data. Bitcoin and Ethereum, the two most valuable cryptocurrencies by market capitalization, are worth more than $160 billion dollars combined. Bitcoin and Ethereum, on the other hand, have seen significant price swings on a daily and long-term basis. Twitter is increasingly being used as a news source, informing users about the currency and its growing popularity, influencing purchasing decisions [5][6]. Using this model, a person can make more informed Bitcoin and Ethereum purchases and sales.

Abu Bakar N et al.[3], explained that Bitcoin has piqued the interest of a wide range of people, from academic researchers to traders. Bitcoin was the first cryptocurrency and remains the most popular. It has grown in popularity among a wide range of people since its inception in 2009, owing to its no-third-party trading system and the high volatility of the Bitcoin price. Thus, this article presents a suitable model that can best predict the market price of Bitcoin using a few statistical analyses. Our research is based on a time series analysis approach known as the autoregressive integrated moving average (ARIMA) model and is based on data from bitcoin from 2015 to 2020. It is also compared to the linear regression (LR) model, a pre-existing machine learning algorithm. Extensive prediction results revealed that the proposed ARIMA model outperformed the LR model in predicting volatility in bitcoin weighted costs in the short run [2].

All of Abu Bakar N et al.[4] presented that Cryptocurrency is a digital currency that operates independently of a central bank and employs encryption techniques to control the generation of currency units and to verify the transfer of funds. A transaction is a value transfer in Bitcoin that is broadcast to the network and collected into blocks.

3. PROPOSED METHODOLOGY:

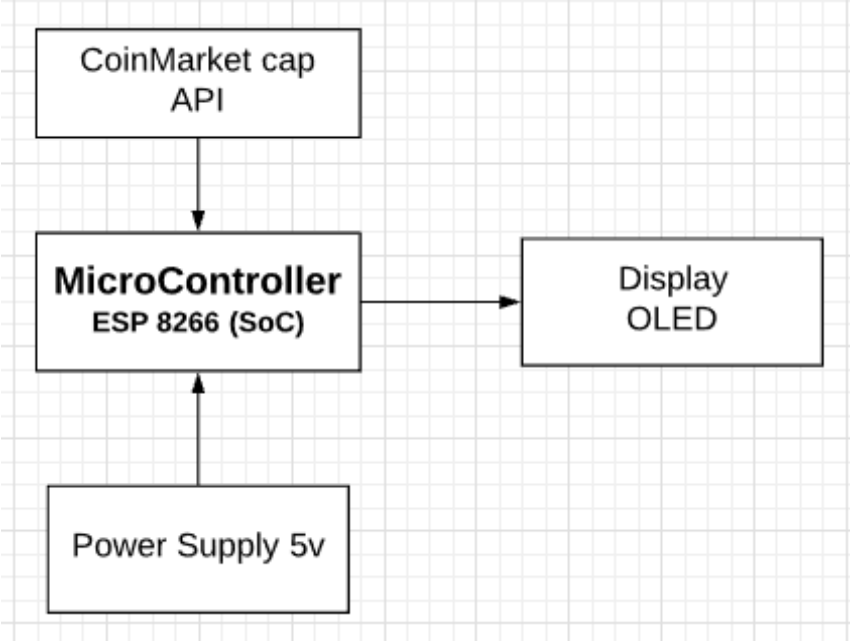

Figure 1. Block diagram of Proposed Method

As illustrated in Fig.1, it necessitates the use of two pieces of hardware: an internet-capable microcontroller for data collection and a screen for data display. As a microcontroller, NodeMCU is used, and an OLED display serves as a screen. The microcontroller will retrieve the data from the website (i.e. CoinmarketCap). After that, the data is displayed on the OLED screen. The price and name of various coins are displayed on the screen. A 5V power supply is used to power the Arduino Cryptocurrency tracker and display.

4. HARDWARE/SOFTWARE REQUIREMENTS:

OLED Display:

Figure 2. OLED Display

OLEDs are used to create digital displays for devices such as television screens, computer monitors, and portable systems such as smartphones and handheld game consoles, as shown in Fig.2. In this case, an OLED display is used to show the price and name of various coins.

NodeMCU

Figure 3. NodeMCU ESP8266

NodeMCU is an open source platform with a hardware design that is editable, modifiable, and buildable. The wifi-enabled ESP8266 chip is used in the NodeMCU Dev Kit/board depicted in Fig. 3. The ESP8266 from Espressif Systems is a low-cost Wi-Fi chip that supports the TCP/IP protocol. It is appropriate for a wide variety of IoT applications. It is used to retrieve information from websites in this case (CoinmarketCap) [15].

5. **RESULTS AND DISCUSSION:** The prices of the coins under consideration, as well as the coin name and price, are displayed on the OLED display. The values of various coins are shown. We can enter any number of coins and get accurate prices.

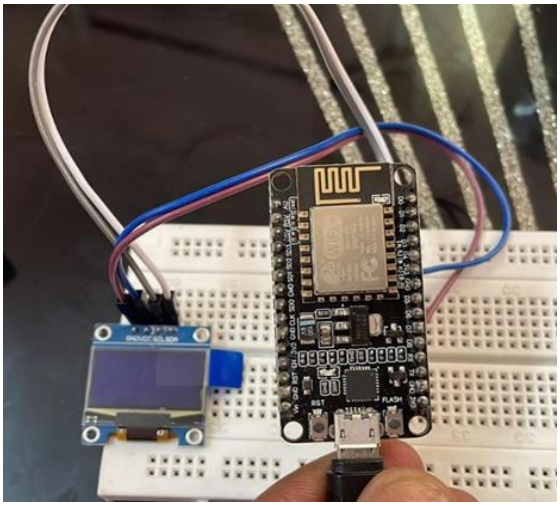

Figure 4. Connection Diagram

Figure 5. Display the value of the Crypto currency

The value of the crypto currency, as shown in the above figure 5, is displayed on the OLED screen alongside the crypto currency name.

6. CONCLUSION:

This paper validates the best solution for tracking and displaying crypto currency prices, and the device or module can be taken with us wherever we go as long as we have internet access. The only thing that needs to be improved is battery life, which is the best way to provide rechargeable batteries similar to those used in mobile phones, which is possible due to the large scale of manufacturing such modules for commercialization.

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