Miners' Coffee

A Powerful and Accessible GPU Mining Software

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Content

Exclusive Summary

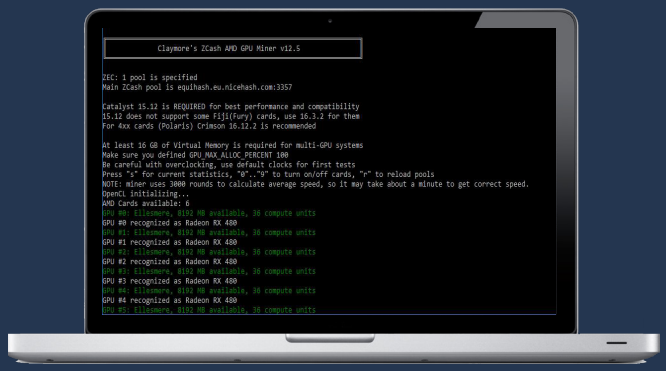
To provide more powerful functions and better user experiences, our group has initiated a next-generation GPU mining software named Miner's Coffee. Compared with existing software of the same type, it integrates more system utilities for state monitoring and hardware configuration, more interactions with end-users, and more elegant graphical representations of data. During the design of this software, we have applied a wide range of software engineering expertise. We have adopted the agile software process for higher flexibility and scalability. Furthermore, we have taken advantage of various UML diagrams to assist design as well as illustration.

Background

Since the end of 2020, the price of Bitcoin (BTC) has been increasing rapidly. This sharp rise has stimulated the whole market of cryptocurrencies. Consequently, the mining of tokens based on the Proof of Work (PoW) mechanism has been more than popular around the world. Some of these types of tokens, for instance, BTC, BCH, and LTC need application-specific integrated circuits (ASIC) for mining, while others can be mined using GPU of PC. Among the latter, Ether (ETH) of Ethereum is the most favored since it provides the highest profit.

Problems

Currently, ETH miners can choose between two kinds of software. One is open-source mining programs with no graphical user interface (GUI), the other is closed-source commercial mining software with GUI and some additional functionalities such as temperature monitoring and virtual memory setting.



Open-source Programs

Commercial Software

Problems with Open-source Programs

The open-source ones are not user-friendly due to the lack of GUI. Users have to learn and type command lines to configure and run the program, which could be annoying for unsophisticated users. Furthermore, this type of mining program can do nothing but mining. That is, users need to use other software to monitor temperatures, set the size of virtual memory, and/or check network latency, which is inconvenient.

Problems

Problems with Commercial Software

On the other hand, although the commercial ones implement GUI and integrate some utilities, they have the following drawbacks:

1 Expensive Commission

First, they take 1-5 percent of mining output as their commission, which could be a significant loss for users in the long run.

2 Insufficient Functionalities

Second, their functionalities are still insufficient. For example, they provide neither an estimation of the daily output in dollars nor statistics on computational power and temperature. Besides, some of them do not supply utilities for GPU overclocking. The ones which do provide overclocking setting do not provide automatic overclocking. Users must set the overclocking parameters by themselves, test system performance and stability, and then adjust the overclocking parameters accordingly. To achieve optimization of the system, users may need to repeat the above process for multiple rounds, which could be time-consuming and tiring.

Problems

3 Unsatisfactory User Experiences

Third, their user experiences are unsatisfactory. In terms of the user interface, their GUIs are filled with texts and lack graphs, which are neither concise nor elegant. As for interoperability, they do not provide sufficient tips or feedback. For instance, on the overclocking setting panel of Easy Miner, there is no prompt about the parameters. For naïve users, this may confuse them. Worse still, if the naïve users set the parameters improperly, the hardware can be damaged. Moreover, there is no notification when the system is not running smoothly. For example, if the cooling of hardware is poor or the clock frequency of the GPU is set too high, the power of the GPU will be reduced compulsively by the driver. As a result, the computational power will decrease. However, in this kind of situation, this software does not notify the users directly. Users can realize the problem only by checking the status manually and actively.

Solution

Our solution is a powerful GPU mining software named Miner's Coffee, which integrates an open-source mining program with utilities for monitoring, overclocking, and tracking.

1 One-time Charge

First things first, once purchased, Miner's Coffee takes no cut. This charging method would be more economical in the long run. At the bottom, it employs NBMiner, one of the most famous open-source ETH mining programs, as the mining core.

2 Powerful Utilities

Concerning utilities, it provides the following functionalities: real-time GPU hash rate, temperature, power, and frequency monitoring; GPU core frequency, memory frequency, power limit, and fan speed setting; statistics on hash rate, temperature, and power consumption; estimation of the daily output in dollars; warnings and suggestions about cooling and overclocking; automatic overclocking.

3 Joyful User Experience

Last but not the least, Miner's Coffee adopts a graceful GUI, which contains a series of line graphs, gauges, and other graphical components. In summary, Miner's Coffee will provide an easy, economical, and elegant ETH mining experience.

Objectives

To ensure the functionality, reliablity, and accessibility of our final product, we will accomplish the following objectives during the development process:

Step-1 Design the system architecture

a) Experience the mainstream mining software and summarize their architectures.
b) Identify their advantages and disadvantages.
c) Summarize inspirations and propose improvements.
d) Establish the initial system architecture of our product.
e) Communicate with the miner community for suggestions. Revise the system architecture if necessary. This step might be repeated multiple times until stability.

Step-2 Develop the prototype

Develop the product according to the system architecture and implement all the designed functions.

Step-3 Test and perfect the product

a) Develop test programs to achieve test automation.
b) Comprehensively test the product and fix problems iteratively until stability.
c) Invite users to test the program. Collect problem reports and suggestions. Update the product according to the user feedback if necessary. This step might be repeated multiple times until stability.

Step-4 Launch an open-beta

Release the open beta and get more feedback from board users to further improve the product.

Benefits

1 Great Functionalities

By integrating the core features of the mainstream miner program, our product is well-equipped features that will satisfy the miner users' basic needs. Plus, by adding additional functions like the estimated earnings and real-time hash rate curves, users can have a more concise understanding of the current status of mining.

2 User Experience

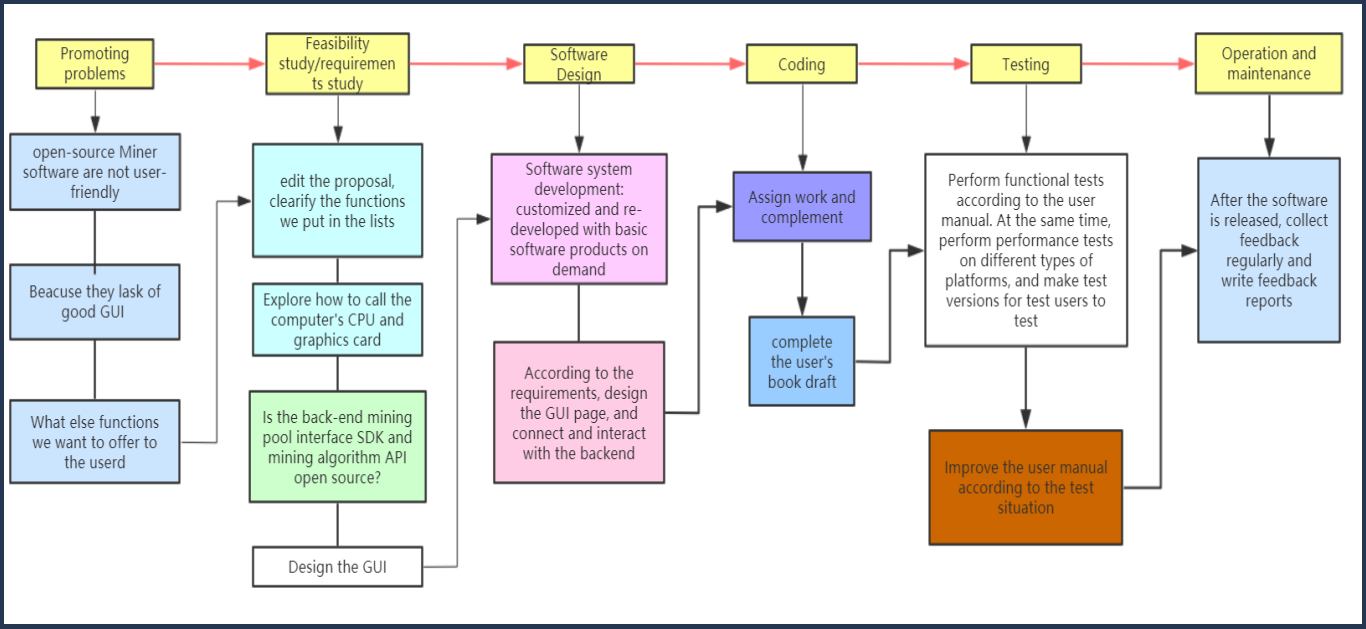
By designing the UI elaborately, our product will be more beautiful and user-friendly.

3 Economic Benefits

Unlike some products that charge the user some portion of their gains as commission, our product only charges the users once for installation which will be more economical.

Timeline

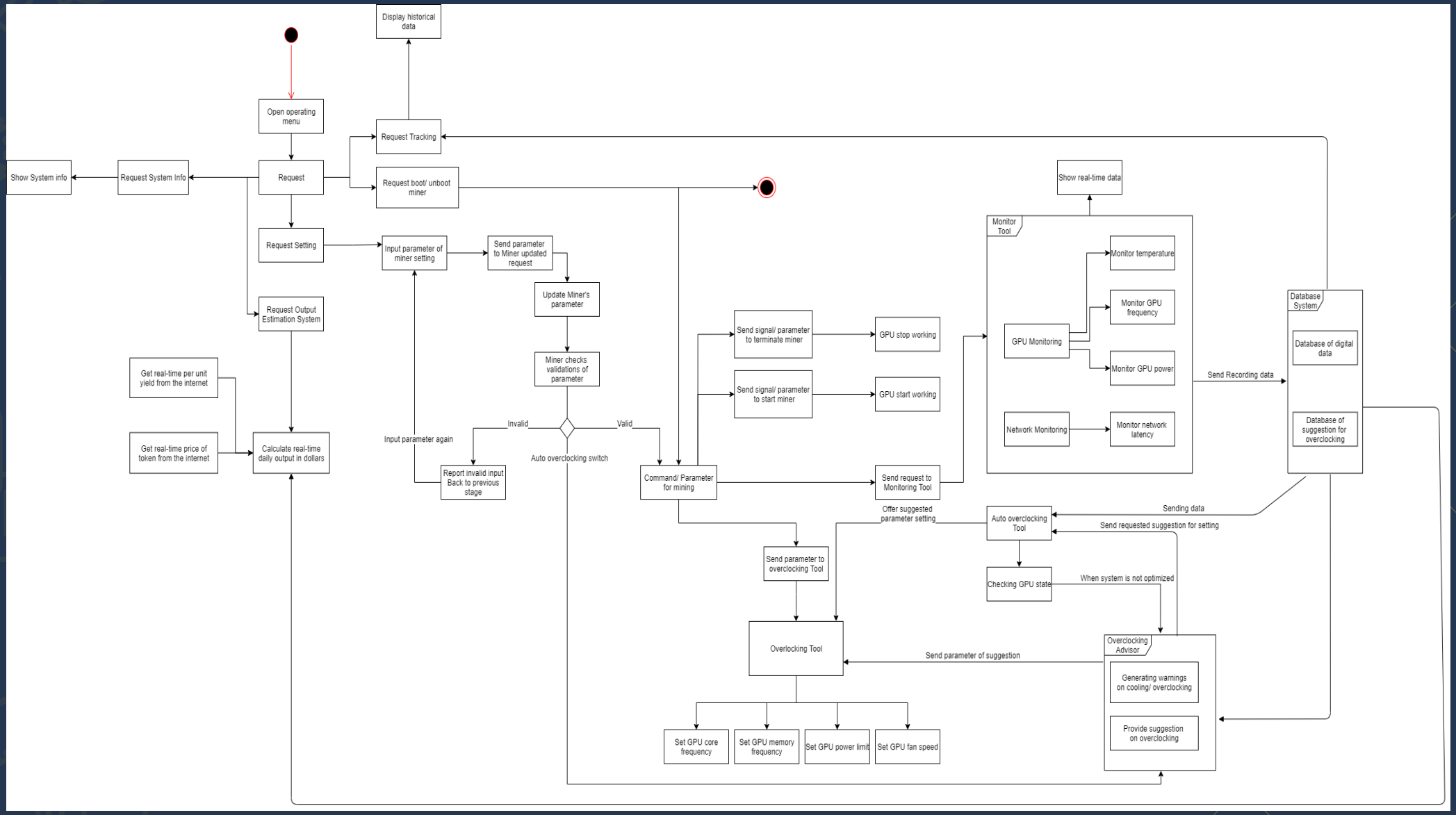
1 Software Design Process



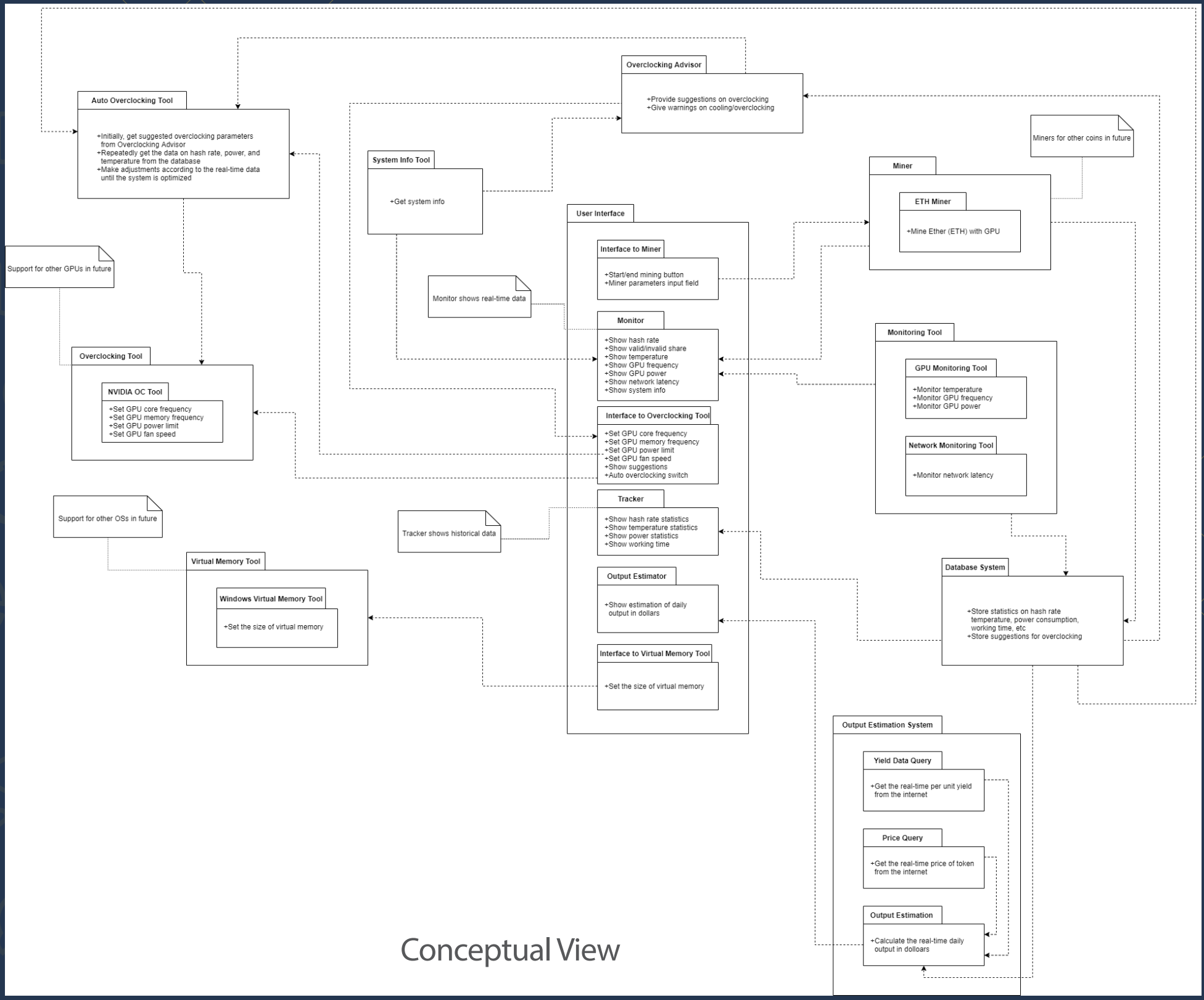
2 Action Shedule

Phase	Description	END DATE
PROMOTING PROBLEM	Promoting problem	20/3/2021
Feasibility study	Study the current problem and find the feasibility of the problem	26/3/2021
Software Design	Design functions	5/4/2021
Coding	Implement functions	25/4/2021
Testing	Find possible problems	30/4/2021
Operation and Maintenance		

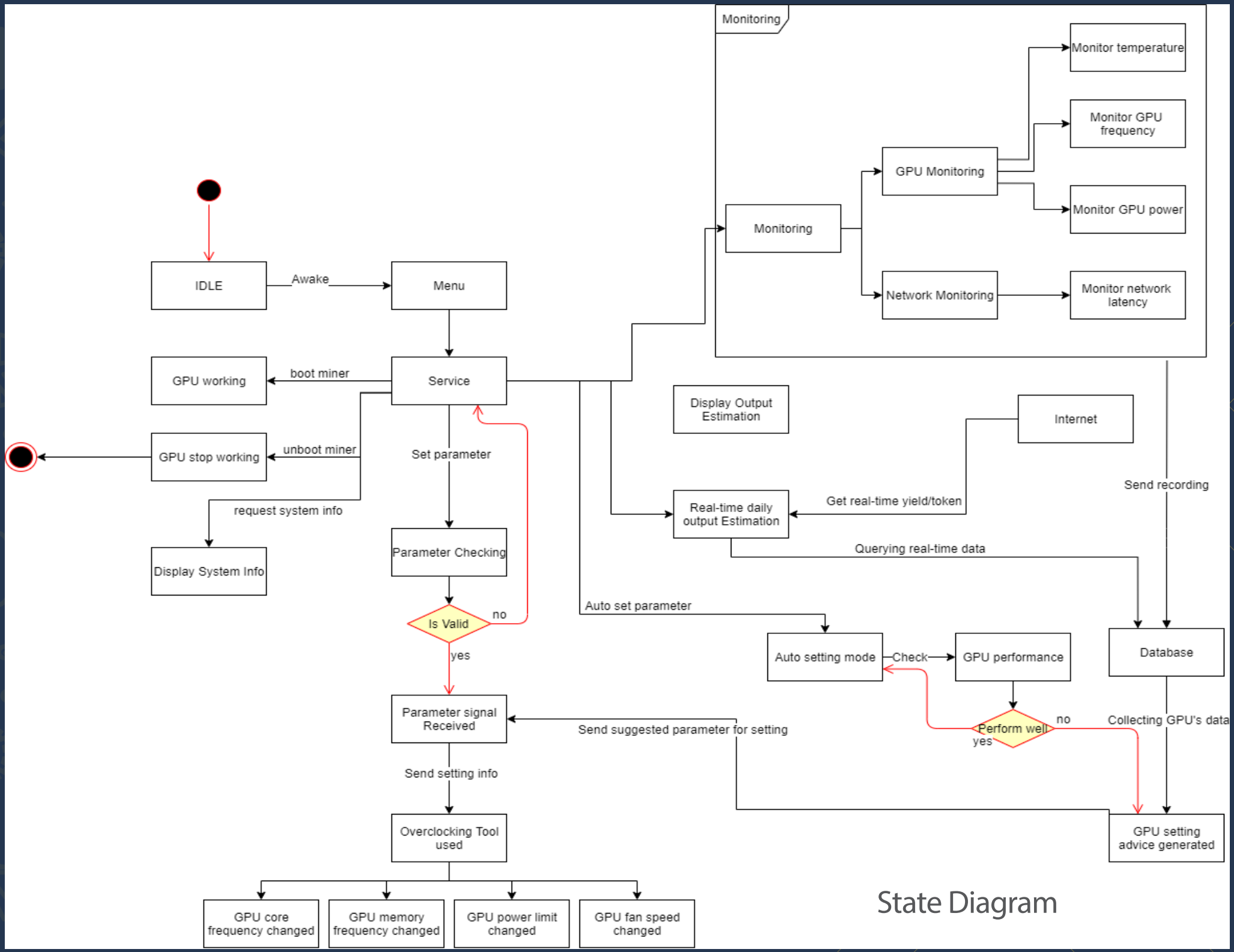
UML Diagrams



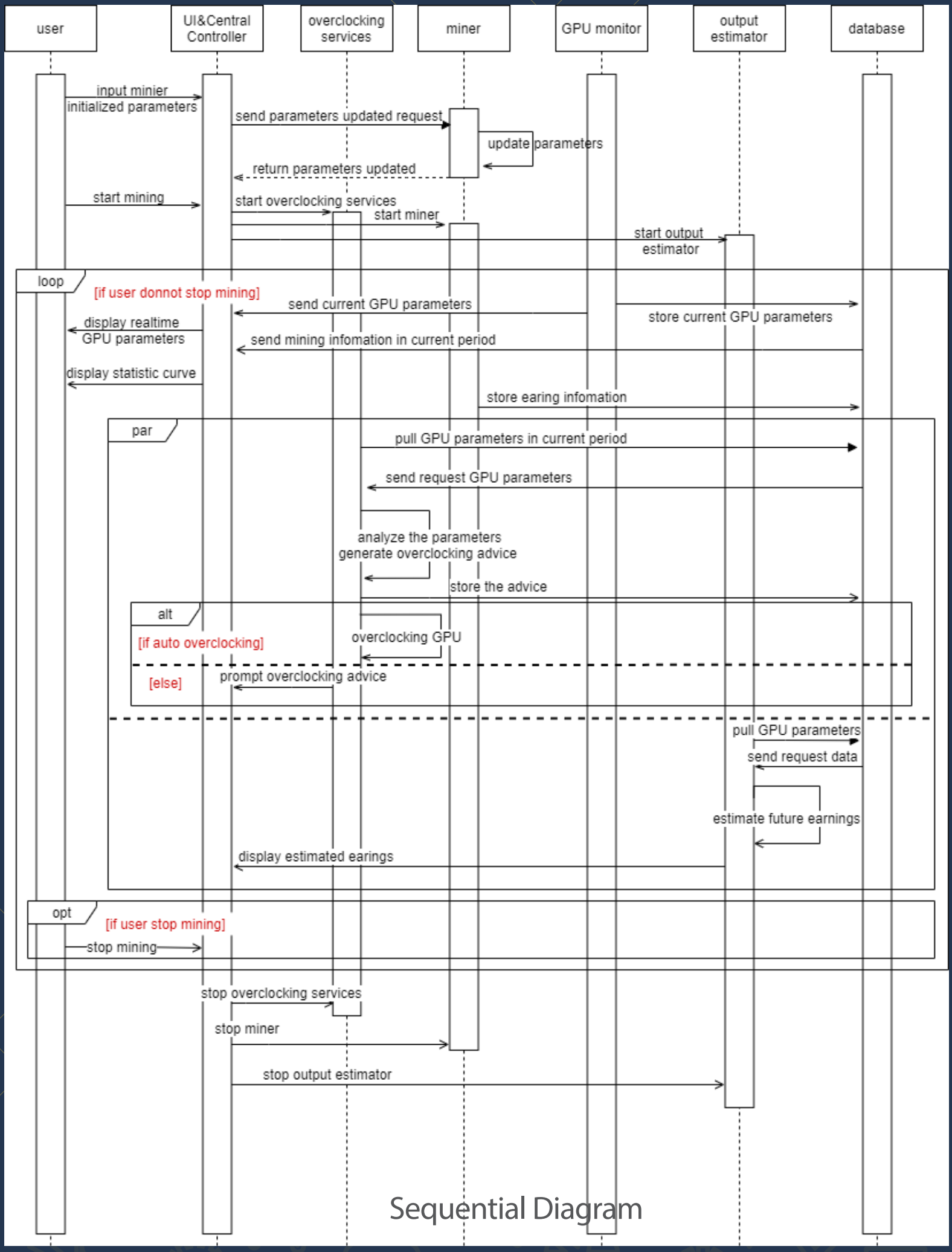
Activity Diagram



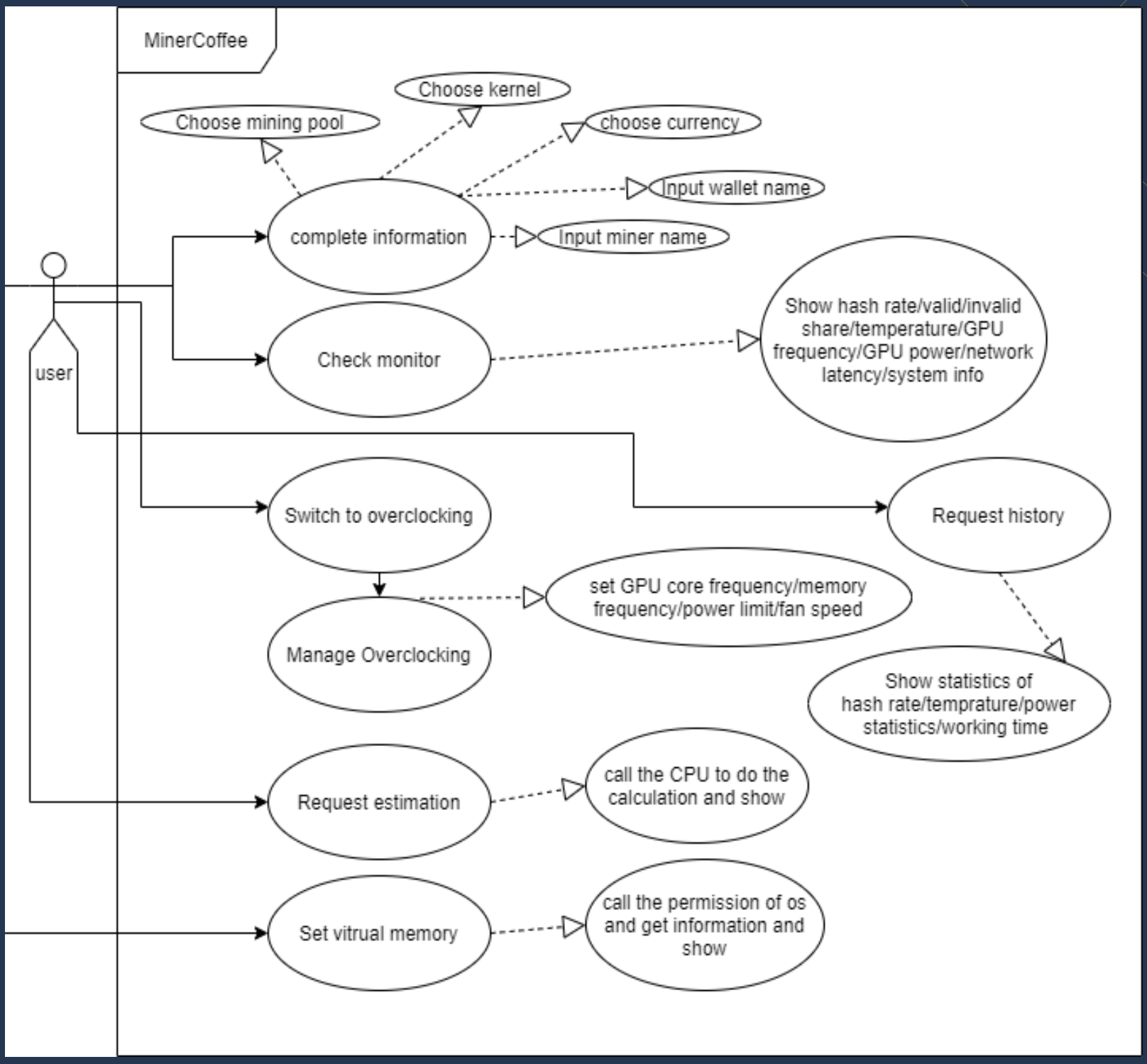
Conceptual View



State Diagram



Sequential Diagram



User Case Diagram

About Us

We are experienced in blockchain technologies especially GPU mining, which ensures our product can be designed in an all-around manner to provide a better user experience. Also, members of the development team have experiences in a number of small and medium-sized projects, which guarantees the quality of our product. With passion and expertise in software engineering, we will present a powerful, accessible, and reliable GPU mining software for the miner community.

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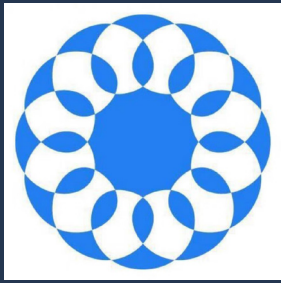

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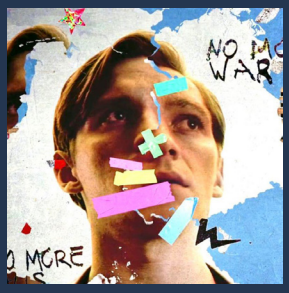

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References

Picture from page 6 Open Source Programs retrieved from : https://help.poolin.com/hc/zh-cn/articles/360038625812-EasyMiner%E8%BD%BB%E6%9D%BE%E7%9F%BF%E5%B7%A5%E6%8C%96%E7%9F%BF%E6%95%99%E7%A8%8B

Picture from page 6 Commercial Software retrieved from : https://cool-mining.com/en/mining-en/nbminer-v33-4-nvidia-amd-gpu-miner-for-eth-rvn-grin-beam/v


THANK YOU