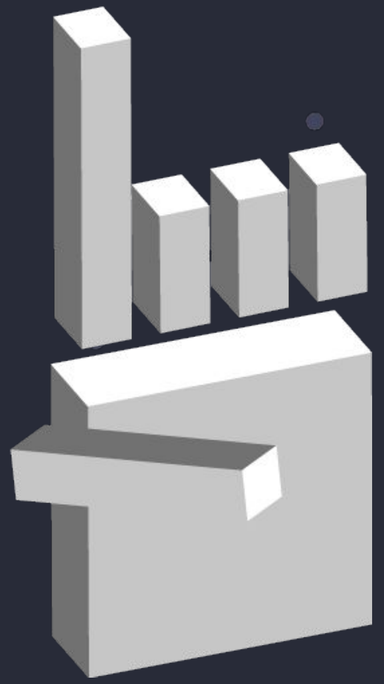
Robonomics platform by Airalab

Sergei Lonshakov, Airalab



Robonomics executive summary

1. **Robonomics is the ready-to-work and open source platform which you can use to connect your robot as a service for end users (Robot-as-a-Service).** We support Web3 technologies that implement the exchange of technical and economic information between humans and machines.

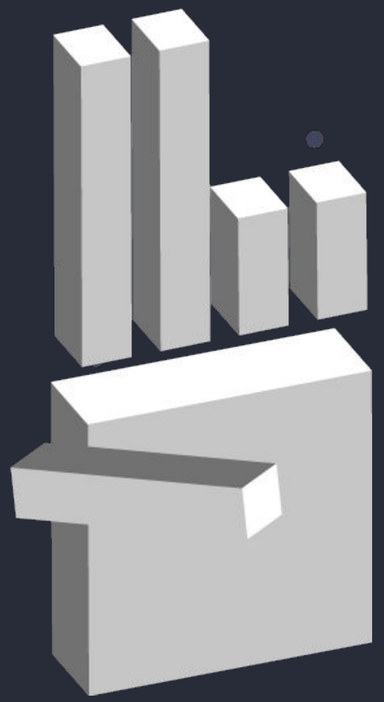
2. **Robonomics is a purely technical and open source project.** The project opens for developers a new audience of users - roboticists. To do this, we linked Ethereum and Polkadot with the Robot operating system (ROS). The number of roboticists familiar with ROS is about 22,000 developers. ROS statistics.

3. **GitHub can tell you more about Robonomics.** There is a long and traceable history of work on the program code of the project since 2015. Team account on GitHub. Timeline.

4. **Scientific articles will tell you about the future use of Robonomics.** As of today, 9 scientific papers, which are related to the use of Robonomics in the field of Industry 4.0 and Smart cities, have been published and defended. Also an IoT training program for Erasmus+ has been prepared.

Robonomics executive summary

5. **Internet resources:**
   a. Website - https://robonomics.network
   b. Twitter - https://twitter.com/AIRA_Robonomics
   c. Medium blog - https://blog.aira.life/
   d. The Robonomics whitepaper and children's books - https://robonomics.network/community#docs
   e. Cases && Projects based on the Robonomics platform - DAO IPCI: IoT for carbon trading, DCZD.tech: Drone Employee and Distributed Sky, Robot-as-a-service in Azure, Chorus Mobility, Zero-cost smart city platform and more.



WHAT IS ROBONOMICS?

This is the first open source platform and decentralized network of IoT providers which you can use to connect your robot as a service for end users (Robot-as-a-Service) or digital markets. We support **Web3 technologies** that implement the exchange of technical and economic information between humans and machines. With the help of the XRT token, economic incentives will be created in order to maintain Robonomics by a decentralized network of providers.

ROS IPFS ethereum

WHAT DOES ROBONOMICS PROVIDE?

- Robonomics providers can open robotics markets (IoT data markets), manage unmanned traffic and launch the work of Smart factories. The Robonomics providers can act, but robotics will be controlled by Ethereum. Skynet resistance.

- Roboticists can provide a direct access to the robot functions, which will be based on a subscription or payment for a specific service to users. The Ethereum computer will secure all the process properly.

- End users can easily order robotics services. Once they send a signed message to the Robonomics network, the network will cover all the next steps.

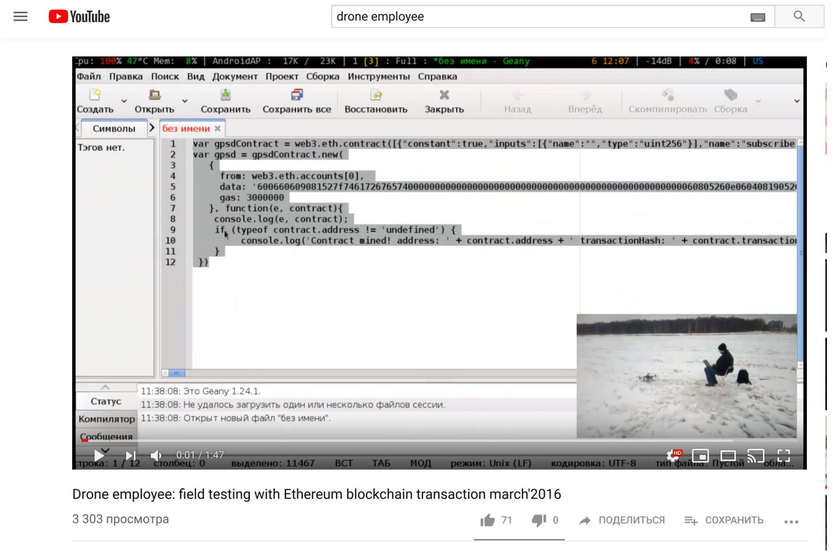
Timeline. Stage 0: the first experiments are performed. Hypothesis tested

Dates: Autumn 2015-Autumn 2016.

For the first time in the world, the transfer of drone control to the Ethereum computer has been demonstrated. The drone was launched to achieve the specified GPS coordinates after the user completed a payment transaction.

Funding stage: 500 ETH from the core developers.

Scan me



https://youtu.be/V_3rcP2Duv0

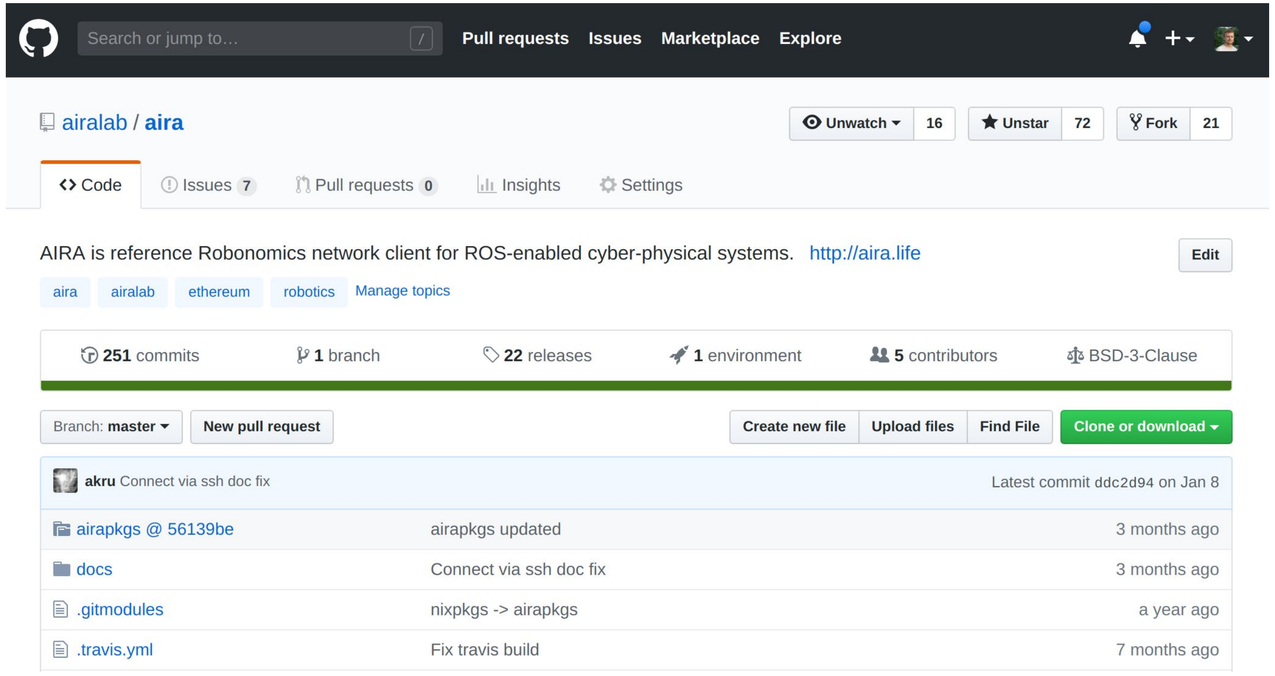
Timeline. Stage 1: the prototype of the Robonomics network client (AIRA) was created

Dates: Autumn 2016-Autumn 2017.

AIRA demonstrated a general scheme of implementing Ethereum and IPFS for downloading the program into the Robot operating system (ROS).

Today AIRA has 22 releases on GitHub and is fully compatible with the Robonomics network. AIRA is supported by the Airalab team.

Funding stage: 1,500 ETH from the core developers.



https://github.com/airalab/aira

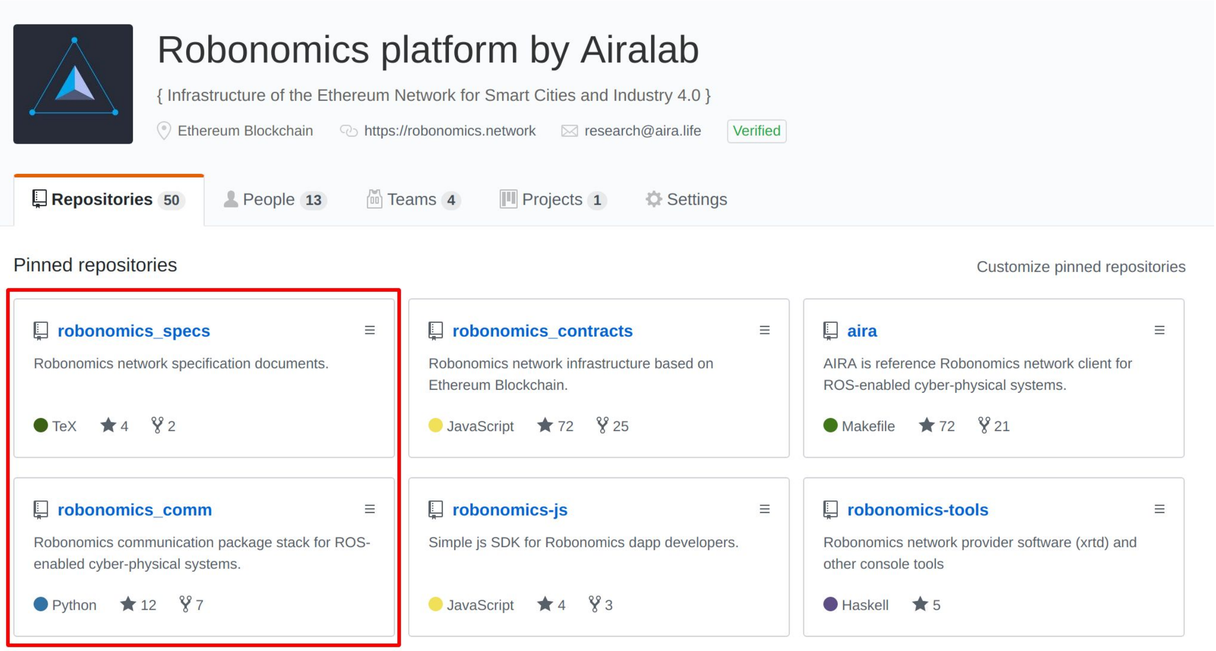
Timeline. Stage 2: the implementation of the work protocol for the Robonomics network providers

Dates: Summer 2017-Summer 2018.

The Robonomics whitepaper [ru][eng][ch] was written. 9 scientific articles about the use of Robonomics were defended.

The communication stack between Ethereum and ROS was implemented according to the Robonomics whitepaper - robonomics_comm.

Funds in the amount of 5,000 ETH were received from the Russian crypto community and friends. 10% of XRT were distributed in the project community.



Timeline. Stage 3: establishment in Ethereum

This is the current stage that began in Summer 2018.

By April 2019, 13 releases of the Robonomics smart contracts on GitHub were covered. The Robonomics versioning system was checked on the change of 5 generations of the Ethereum network.

In Summer 2018, Open Zeppelin was integrated and 2 independent audits of the contracts' code were passed.

The token emission instead of the gas utilized in Ethereum was tested and stabilized.

ROBONOMICS.NETWORK

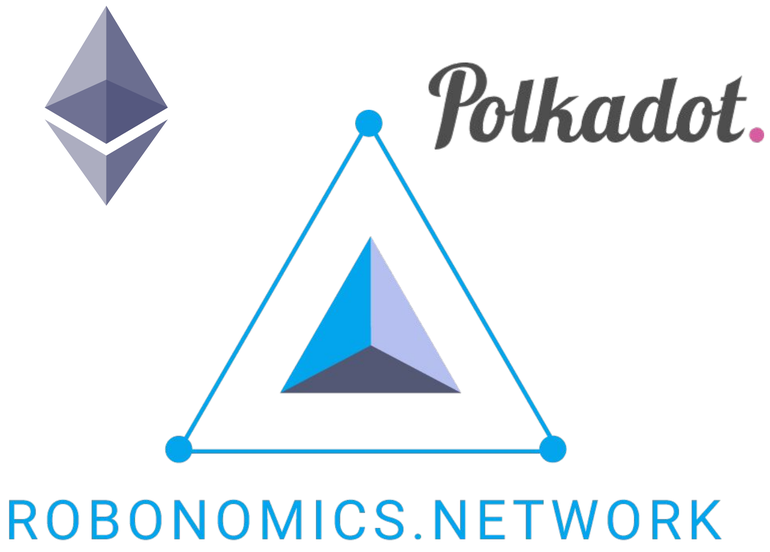
Timeline. Stage 4: establishment in Polkadot

There are **one platform** for roboticists and **two networks** under the hood of Robonomics. This provides Robonomics empowerment in the direction of Ethereum alternative.

Robonomics is one of the first projects in the Polkadot ecosystem. Work is already underway since the end of 2018.

We are preparing to launch Robonomics parachain in Polkadot together with already running network on Ethereum. Check some links below: Robonomics on Substrate and Robonomics Polkadot telemetry.

Vote for Robonomics parachain in Polkadot!



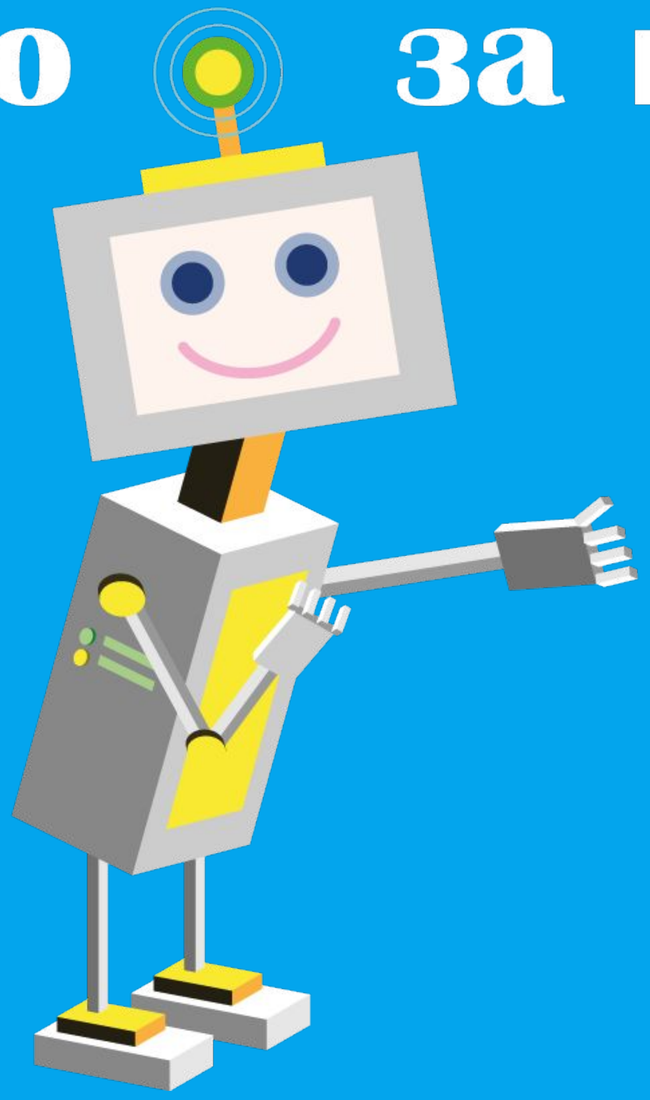
Timeline. Stage 5: Support & improvement by the community forces

Further, the main thing is the formation of standards, similar to the Ethereum improvement proposals (EIPs) - open source approach!

Also, of course, the timely update of the platform based on improvements of Ethereum, IPFS and Polkadot, adding Swarm, Whisper and other alternatives for p2p communication that are interesting for roboticists.

спасибо за внимание

感谢您的关注



Thank you for your attention

Merci de votre attention

ご清聴ありがとうございました