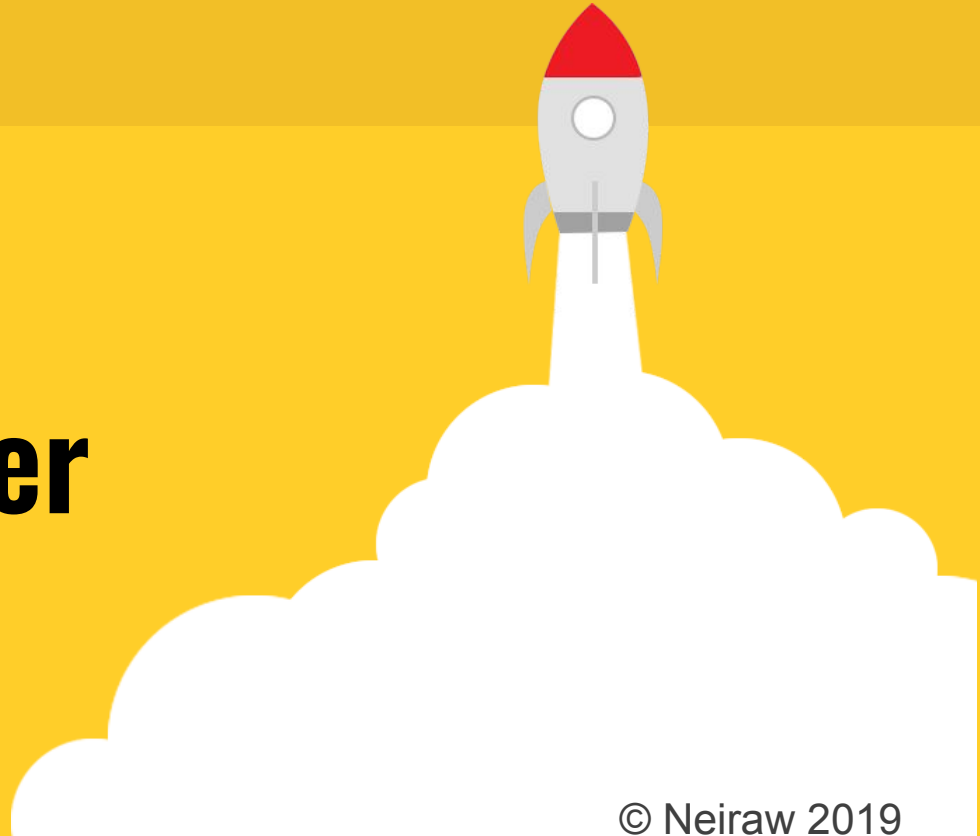


Team “Neiraw” The Memory Maker



© Neiraw 2019

Meet the Team



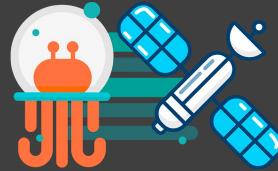
**Dmytro
Kyrychkov**

Machine building
engineer



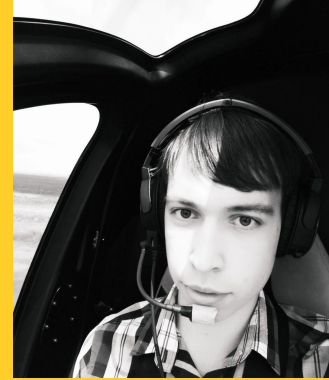
**Valentin
Yurchak**

Machine building
engineer



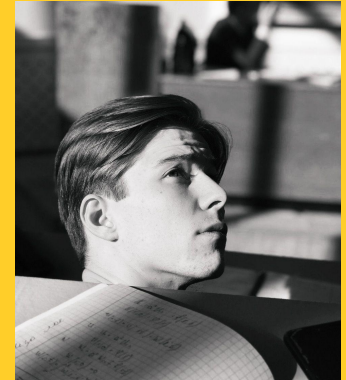
Neiraw

Pain is temporary
Progress is forever



**Valentin
Matvienko**

Aircraft
engineer



**Denis
Nevchas**

Heat and Power
Engineer

Problematics

Venus is the "sister" of the Earth, goddess of beauty according to Roman mythology, but not as friendly as it seems:



Today's weather

Temperature - **464°C**

Pressure - **92 times** the surface pressure of Earth

Atmosphere consist-
Carbon Dioxide, Nitrogen

By the numbers

Length of year - 225 Earth Days

Size - Venus is 1.1x smaller than Earth

Mass -
4,867,320,000,000,000,000,000kg



AREE

Automaton Rover for Extreme Environments



An automaton rover combines ancient mechanical computers with modern manufacturing technology to create a design without electronics, enabling exploration of the most extreme environments in the solar system.



Objectives

01

Functions

The signal for reading, writing, and erasing memory could be mechanical, electrical, or both.

02

Size

An ideal system fits into a box that is 25cm by 100cm by 100cm

03

Mass

An ideal memory system is less than 25 kg, including packaging

04

Signal Input

Linear motion of 1 N over 1 cm, or a rotary motion with a torque of 0.1 N-m

Fluidics Explained

Definition

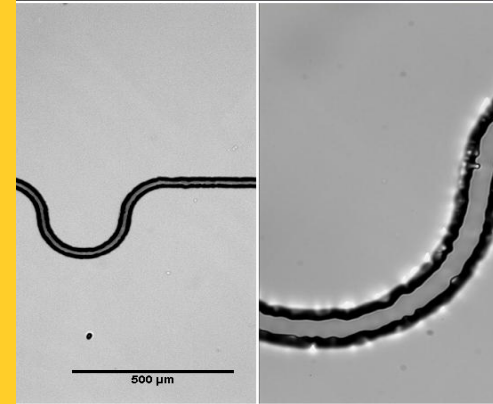
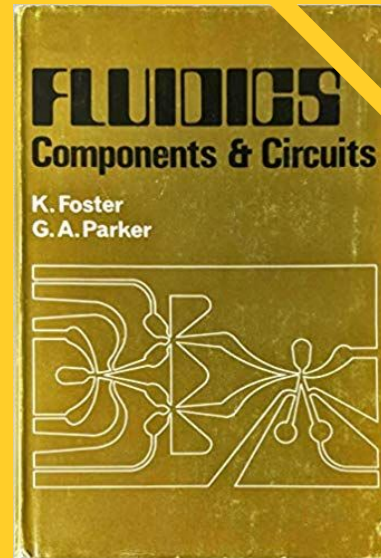
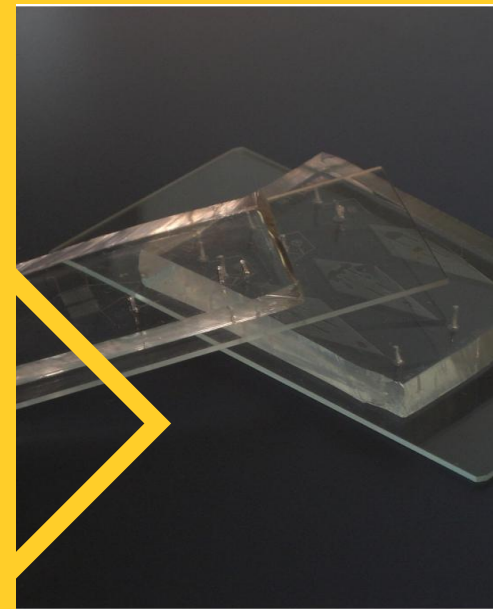
Use of a fluid to perform analog or digital operations similar to those performed with electronics

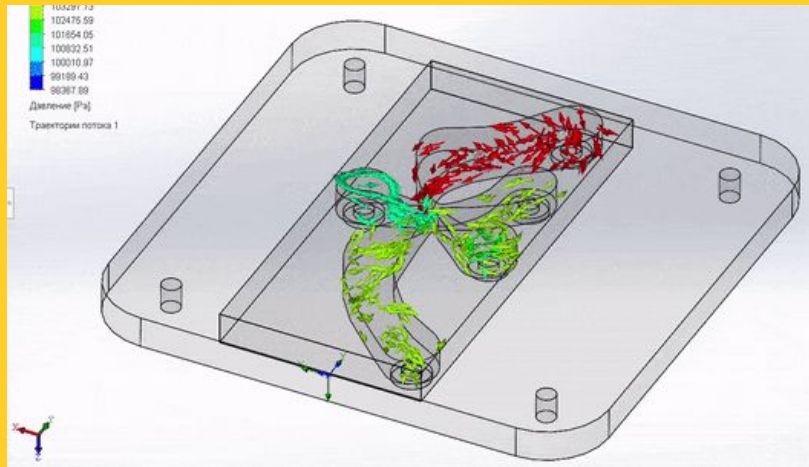
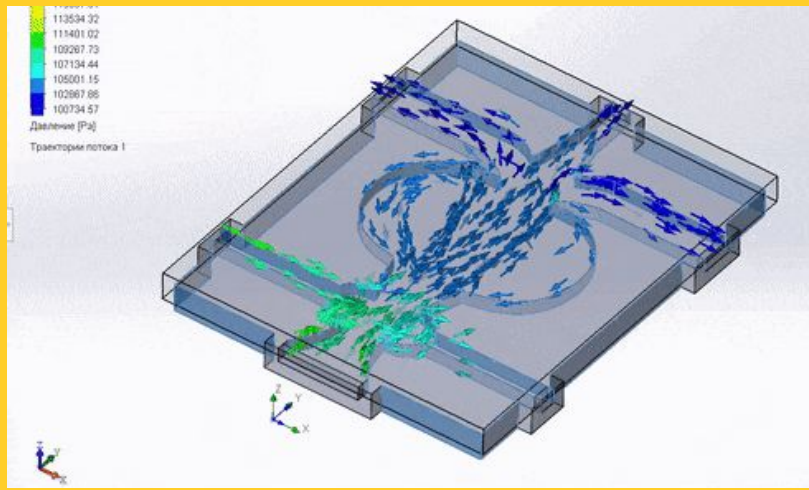
Logic Gates

Can be built that use water instead of electricity to power the gating function

Triodes and Amplifiers

The fluidic triode is an amplification device that uses a fluid to transfer the signal





Simulation Test Fluid Amplifier

This model is one of the most useful patterns that allow us to increase the current strength by creating vortexes that change the main stream.



The Solution

Benefits of using Fluid Logic

Haven't been done before EVER

We are integrating a completely new system. There's no such research existing.

Less is more

The smaller system have better properties. Minimathing the size improves performance

Never give up

Simple realization = fail-free operation



Perfect match

We tamed aggressive environment with using Galium. High temperatures make our liquids move.

Independence from electronics

We don't use electrical modules in our Super-duper project.



Process of Data Encoding

This technique uses heat resistant steel plate with thin Basalt coating to record data with steel pin.

Familiar technology - the Golden Tape



Memory Recorder

Perforation cards never been so good!

Reliable Materials

UNS S32109 - heat resistant steel is used to make data storage as safe as possible

Detachable tape.

Easy way to replace storages. Simple like paper & pencil



Simplicity

We minimized amount of moving parts to make it more secure



Durable Coating

Useful mechanism of saving data with help of compressed Basaltic powder



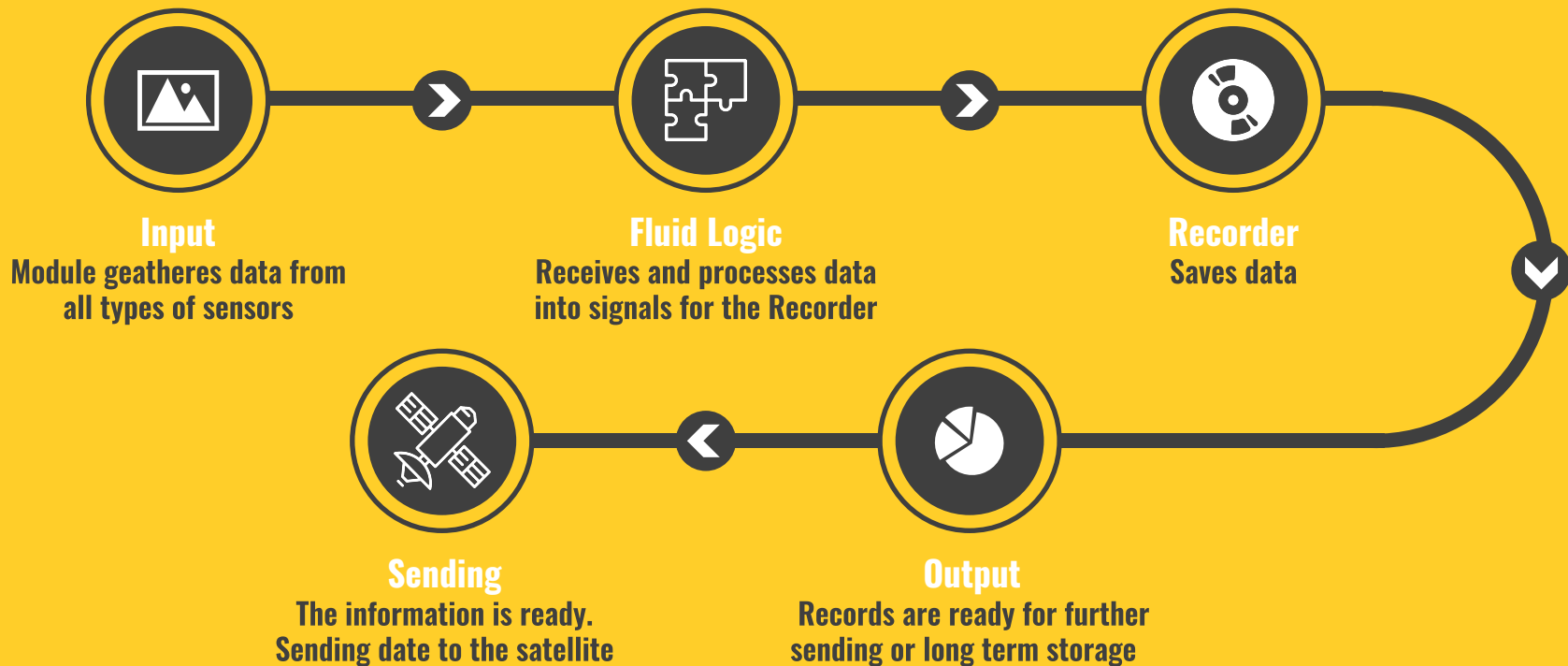
Compact

Requested 8 MILLION cells fits on our disks 0.05 mm² each. Going smaller - not a problem!



“How do they do it?”

Core principle of our solution



Our Realisation Pros

In Data Storage and Processing

Begin the development!

Physical model adapted for Earth-like environment can be made within years using approx. 25,000\$

Fast,Durable,Inexpensive

This innovation uses simple solutions that can be done in low budgets

No Electricity Used

The whole system is electricity-free consume kinetic energy from AREE's strings



Environment Friendly

Our mechanical approach is ready for any other dangerous environments

In near future

Fluid Logic can be used in medicine. Data Recording can be used for Volcanoes .Even on other Planets!



Startup Potential (Business Model Canvas)

Potential Partners

- NASA
- Ministry of Defence
- Nuclear industry
- Suppliers
- Research institutes
- Companies in need of eco-friendly automatisisation

Customers Relationship

- B2B
- B2G

Main Segments

- Space explorations
- Non-electric eco-friendly automatisisation in hostage environments

Value Proposition

- Best solution for aggressive environment
- “Black Boxing” data from crashes
- Non-electric automatisisation
- Suitable for any environment

Key Activities

- R&D
- Consultations
- Specialists training
- Production

Key Resources

- Unique technology
- First on the market

Cost Structure

- R&D
- Integration
- Taxes
- Logistic
- Growth Expenses
- Raw materials
- CAPEX

Revenue Sources

- Sale of products
- Customer Support
- Grants



To be continued...

Resources:

- *Fluidics: Components and circuits*
- *Blikstein, Paulo. "Programmable Water: Computation is not just about electronics"*
- *Solar System Exploration*

Contact information:
Neiraw.info@gmail.com

