

DIVE

Decentralized Conceptual Knowledge

The DIVE project aims to create a software that allows the user to *dive* into objects using a camera and machine learning algorithms; revealing their properties, how they work and interact with the environment.

In its backend, DIVE will store the crucial information within the blockchain. More specifically: NEO. There are multiple reasons for this:

- Transparency of all the changes (transactions) that are made on the blockchain will be the backbone of trust in the immutability of information stored
- Monetarily incentivizing the community to map object properties along with 3d artists drawing models of objects
- Future-proofing
- Funding potential

There are 3 platforms/stages the project will be built on:

- mobile phone application
- virtual reality
- augmented reality

Here is an ideal, finalized functionality of the product (1st stage: mobile phone application):

- The user installs the app on their phone.
- Running the app opens up the integrated camera feed in real time with functionally designed interface.
- The user takes a photo of their surroundings, or a particular object of interest.
- The photo goes through an image recognition algorithm that identifies objects.
- A search algorithm then cross references whether data (of properties) on those objects has been stored within blockchain and whether a 3d model of the object exists in a centralized database on a server. (3D models require much more storage which is inconvenient to store within blockchain)
- Upon successful identification of an object the camera feed turns off and the user is taken into a three-dimensional virtual environment that loads the object and all of it's properties stored within the blockchain.
- The functions that the user is able to execute are limited by developer team's capability and creativity but they would range from rotating, scaling, wireframing, animating disassembly to basic parts, displaying the same object with differently selected properties (e.g. color,

mass, volume, material, density...), etc. DIVE's long-term ambition includes creating simulations of interactions between objects where various properties and forces become definable variables. This will ultimately require a creation of a new physics engine.

To seal the rift between the distant world of blockchain and that of the end-users we have decided to enveloping our concept into an immersive gaming experience, which will especially appeal to younger generations. Furthermore, this approach will secure sufficient data supplies to the machine learning algorithm, as players will practically raise it and additionally improve their own knowledge pool while doing so.

By incentivizing artists to upload 3D models of objects to DIVE's database through cryptocurrency payments executed by a smart contract (an asset class on NEO's blockchain specifically designed for this purpose) we can create a self-sustainable environment that attracts new talent and creates competition without having to hire people full time. Smart contracts on the blockchain will allow for contactless growth of DIVE's open platform.



The goal to make DIVE trustless, scalable and self-sustainable platform can only be achieved through careful design of interactions between off-chain and on-chain functionality while keeping fairness and transparency the number 1 priority.

The motivation to create DIVE came from dissatisfaction with our educational system. It is outdated, and at its core it suppresses the curiosity to learn that every child is born with. DIVE's vision is to be the answer to every: "What is it made of?" and "How does it work?" kind of question.

With the invention of the internet, the availability of knowledge gained a new dimension. DIVE wants to take it a step further by making an interactive connection between learning motivation and memorizing information through a set of self-gratifying loops that are already built into the human psyche. Instead of forcefully barraging the brain with information, DIVE creates visual association and builds bridges between theoretical technology and pragmatic knowledge by allowing the users to dive into objects.

With this concept in mind DIVE aims to rekindle the natural freedom of learning that the current educational system dimmed. Our project can be viewed not as an educational reform but an additional tool that fuels the learning affinity of students.