

Districts - Short Paper

www.districts.io

Districts is a 3D virtual reality platform based on its own blockchain fuelled by 3D Coin. The platform provides tools that anybody can create its own 3D virtual reality world in districts without restrictions. The districts can be built even by people with no programming or coding skills. This is possible with the provided tool Districts Visual Studio (DVS) and let everybody participate to create the world of its imagination. The DVS allows the user to build all kind of Dapp (Decentral autonomous programs) and surroundings the user is intending to. The 3D world can be experienced at computer or by equipment of virtual reality providers like **Oculus or Unreal Engine**.

Bringing everyone in a single continuous city, with a total freedom of action, and displayed in high quality graphics yet very well optimized, Districts will be the place where your dreams come true, with all kinds of decentralized application running alongside, people will be immersed in a living world where cars, houses, shops, playfields, or any imaginable activity are of their own making, the user remains totally merged with reality, as services can be provided both in and out of Districts, thus giving a maximal exposure for the lowest cost to businesses.

Movement options are multiple both in standard and VR mode, targeted fluid relocation for short or long displacements, movements through devices like hover boards, or vehicles of all sorts, which can be customized. All kind of business could use the freedom to create at Districts all kind of things. Following parts could especially benefit from Districts.

Marketing: For business, the immersion brought by virtual reality enhances every possible interaction: real estate developers, car, view and experiment a car in varying environments, or even clothing dealerships; will be able to present their products and their possible customizations in a realistic lively manner. These are shown in the city space or even in instances accessible from street or small stores. Customer acquisition will be simpler and cheaper due to the constantly available and renewed circulation incentives, which are induced to them by the presence of interesting activities in every corner of Districts.

Architecture: For this part the DVS is a great tool that architects can use to build a house on their imagination. They could present a real projection of their skills and interested people can visit the house without leaving the home. The house can be furnished and coloured exactly how the house looks in real life. The ability to remotely visit a house or a motel room and inspect every corner of it, try furniture in a virtual model of your house and see what fits it best will improve customers decision making leading to a better satisfaction. Outside of Districts, creator's efforts are heavily taxed in varied ways, in Districts, none of that. All revenues will go fully to their rightful owners.

Education: Online learning shows a high dropping out rates, less than five percent of enrolled students finish the curriculums, and the obvious reason is that usual methods fail to maintain students' motivation on the subject, they get bored and become disengaged, virtual classes solve this problem. An online class lacks terminating the

course by its students. Imagine a world where the students could participate on physics and let a rocket start in a virtual reality provided by Districts, or a coding class giving each student the opportunity to code his own personalized robot and see him getting more and more lively as the coding skills of the learner grow. Learning will just stop being boring when it is done in epic sceneries and with all kind of interactive setups.

Health care: Mental health can greatly profit from VR, because feeling the presence of a caring person has a better effect than any other online interaction like text dialogue or even video conferencing. Virtual anonymous gatherings for psychological support, one on one therapy, personalized phobia treatment with customized environment helping patient to gradually confront their fears.

Private housing: This offers for users the possibility to create a personal customizable space that could have many purposes such as friend gathering spot, watch to movie together, play arcade or card games, it could even be a display gallery.

Decentralization being a key element in our project, there is no central authority, meaning, that all content control is in the hands of the community, through a voting system, all data, except user specific data, will be stored in the 3DCoin blockchain which doesn't only serve for the crypto-currency.

3DCoin is the new cryptocurrency that we have developed; the protocol was created using **Bitcoin and Dash** source code as a basis to inherit their safety and power, with implementations making it fully compatible with Districts, besides new features. The 3DCoin system enables the use of many public-key cryptography methods (NIST 5 hashing algorithms), improving safety, and allowing the use of pre-existing keys from other crypto-currencies, or any other system, for example, if you use a PGP key for your emails, you will also be able to use it to **receive 3DCoins**.

To each block, several **Data Capsules** can be attached; these hold the scripts of Decentralized applications. 3DCoin uses a **scripting system for transactions**; the Script is stack-based. Scripting provides the flexibility to change the parameters of what's needed to spend transferred 3DCoins. Transactions can be simple transfer orders, but our protocol allocates an important portion to scripts in blocks' space, making the implementation of function such **as conditioned transactions possible**, beside standard transactions. Transactions can be programmed to be received only if certain conditions are satisfied, this offers a large spectrum of options in terms of automated operations. The said conditions are written in the script that is attached to the transaction. A **simple visual tool** will be available in the **wallet application** to set such transactions. For example, the scripting system could be used to require two private keys, or a combination of several, or even no keys at all for the transaction. **Smart script optimization** is automatically performed by reducing unnecessary steps that might be made, resulting in shorter but equally functional scripts, saving a lot of space in blocks and data capsules. Script verification module adds a safety layer by checking all possible operation sequences, and argument, allowing only bug free and always spendable transactions, and decentralized application to be accepted in the network, this is done by all peers.

Mining is made by proof of work and can be done with **GPU-CPU and any hardware**. When the computing power increases in the network (hash rate), either by the growth

of the miners' number or their hardware performance, a compensation must be made by raising the mining difficulty, thus keeping a healthy block production rate, and maintaining the consensus over a single chain. Once a block is mined, a block reward that consists of newly generated 3DCoins is distributed among Miners (50%), Super node operators (45%), and a Development reserve (5%). This is the **unique 3DCoin generation method**.

The owner of a node can upgrade it to a Super node by staking 10.000 3DCoins that he can recover at any time; this allows him to contribute to diverse functions, and be rewarded for that, with such a stake, **Super node** operators are incentivized to make the best decisions possible, as they will directly benefit from the effects, the functions are:

- Casting his vote for content control.
- Participating in the Instant transaction service.
- Hosting Coin blending sessions.

Even if transactions take a few minutes to be confirmed in the blockchain, it isn't fast enough for retail environment, where goods are meant to be delivered instantly, this is where the **instant transaction** comes at hand. The process is orchestrated by 10 randomly selected super nodes; these are changed every time a block is mined. When an instant send request is sent, the super nodes call the entire network to lock the input that will be treated; any transaction using it will be rejected. Once the entire network is synchronized on the lock; the **super nodes** will verify and then confirms the instant transaction even if it is not saved in a mined block yet, it will eventually be broadcasted like any other transaction and treated as such.

All Applications scripts are encoded and stored in the Data Capsules, removing the need for a central server, or at least, making it optional. The Districts space will be divided among nodes, as they do not only manage messages and blocks, they also host the actions and events happening in the Districts, **bandwidth saving** will be done by a loading priority based on range, actions will not be loaded beyond a certain distance. For games, a peer to peer method combining the decentralized and distributed models has been developed, instead of communicating directly with each other; peers use nodes as bridges to gain a better routing and **faster synchronization**.

Non- fungible personalized assets can be created with the **wallet application**, this creation consists on a reversible conversion from 3DCoin, only the name must be chosen by the user as the rate is always 100 sub-currencies to 1 3DCoin, sub-Currencies can be used as tokens, shares, coupons or in any possible way. Many cryptography methods are offered to users including the ones of other cryptocurrencies; it means that our network can accept any public-key from any other cryptocurrency thus, simplifying multiple account management. You can receive 3DCoins to your old key, with no need for the creation of a new one. Our long-term goal is the generalization of this use among all crypto-currencies, allowing people to pick a **universal key**.

Dapp are ones that use the blockchain technology. The visual side is held in the unreal engine library that will be part of the Districts' client, but the script, which is generated by the **Districts Visual Studio (DVS)**, lies in the blockchain, in a Data capsule, cutting

hosting costs and getting rid of downtime. Dapp can range from games to educational platforms, or stores and showrooms, selling real (clothes, houses, food) or virtual products (programs, in game items, hosting services); there is literally no limit on what Dapp can be. The ownership of the Dapp is defined in a scripted transaction, one that doesn't hold any 3DCoin amount. A Dapp can be freely or conditionally used, but only the owner can modify its script. Scripts will be encoded to have a very small size, while being client specific, meaning that they can run only with Districts' client, ensuring a maximal safety, as the possible functions that a script can use are well defined and generated only by the DVS. The DVS enables anyone to **create any program without coding**; it presents a rich and expandable library of functions, textures, sounds, and 3D models, with an **intuitive interface** simplifying the creation of Applications. Users have a virtual reality edition mode that gives them the ability to build their Dapp in its final form, also, ready to use **customizable templates** are available for many Dapp types. Tutorials that teach every aspect of DVS development can be found in the starting area of Districts in the form of interactive bots, as well as videos, or a dedicated forum section where community mutual aid will take place.

Conclusion:

The districts project offers a complete framework where the highest expectations of consumers will be met by an incomparable offer, in terms of quality and quantity, creativity will be liberated, and ideas will never be confined in the realm of imagination, literally everyone will have the opportunity to express himself, and enjoy the creations of others, in a truly free market ruled by its users. With Districts your second life is in your hands without being controlled or limited by a third party. You are free to build your own world and with your creativity you could even earn 3D coins by offering your service or product. We provide a whole eco-system with tools (Districts Visual Studio) you can easily express your phantasy, or you can create your own Dapp, without having coding skills. This platform is based on its own new blockchain with great new features with high standard of security. To fuel this platform 3D Coins are provided by Districts and you can create even your own token (Sub Currency) just for your business or your friends.