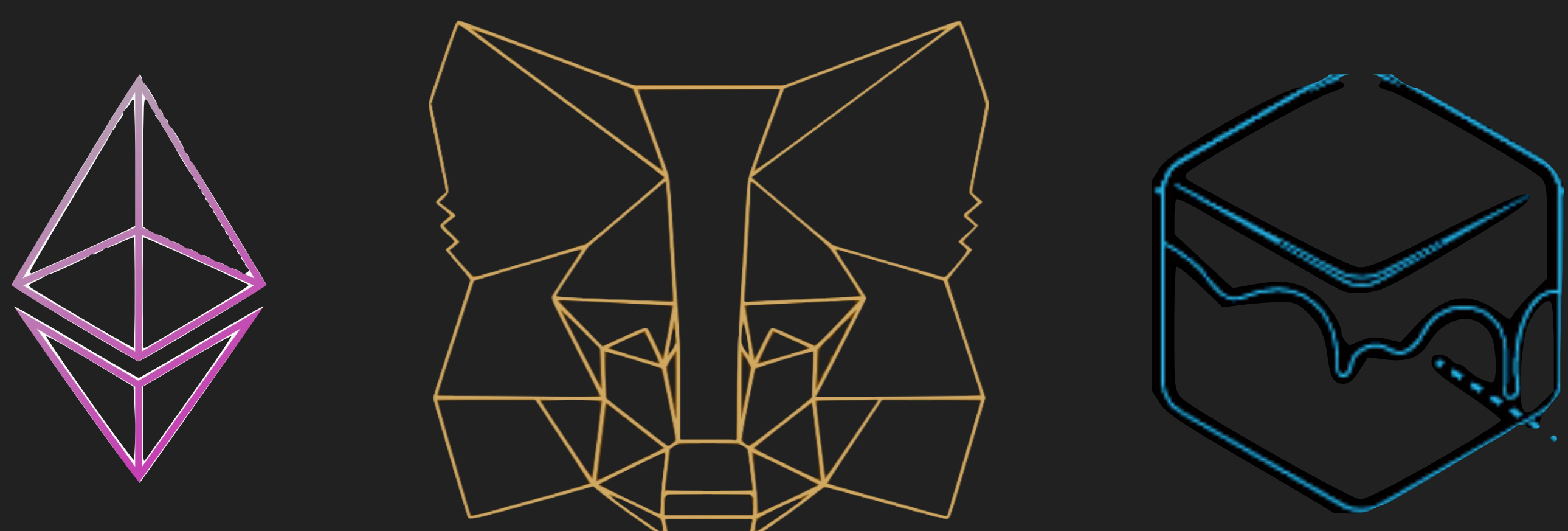


Welcome to the World of Tulips!

Welcome to the **World of Tulips**, a fully **decentralized**, autonomous **application** (**Dapp**) implemented on the **Ethereum blockchain**, itself **open-source**, that virtualizes an **attractive** and entertaining **Tulip** growing community. The **World** offers the opportunity to **grow**, **trade**, and **sell** stable value **Tulips**. Many implementations (cite) of “**decentralized applications**” have been proposed that utilize or require a **central authority** governance structure to grant **preferential** permissions and incentives.

The **World of Tulips**, however, is based upon the core belief that the true **decentralized app** is without **owner** or **manager**. To this end, for full **transparency**, all **smart contracts** and front end implementation code will either be published on the **Ethereum blockchain** or otherwise made **publicly** available so that **participants** in the **World of Tulips** can have the confidence that the **World** and their assets are **secure**: the existence of a **central agency** is not required. All **Tulips** are recoverable by their **transparent** properties and **transactions** stored on **Ethereum blockchain**: the **World of Tulips** does not obscure the determination of any properties in private **smart contracts**. Furthermore, this **smart contracts transparency** ensures that the value of **Tulips** is also **transparent**: there are no ‘special’ **breeds** that are held in reserve by a **central agency** that, once released, could reduce the valuation of existing **Tulips**. Instead, all **Tulips** **grow** organically through the same mechanism from **digging** for **bulbs** to **growing** a **Tulip**, to **breeding** new **Tulips**.

Intrinsic **Tulip** value is determined by **Tulip attractiveness**, as determined **pseudo-randomly**, its proximity to **World genesis Generation 0**, whether it has been **bred**, and its **sale** record at **Market**. **Sellers** are able to set their own **Tulip** price: the **Market** will determine whether it is acceptable!

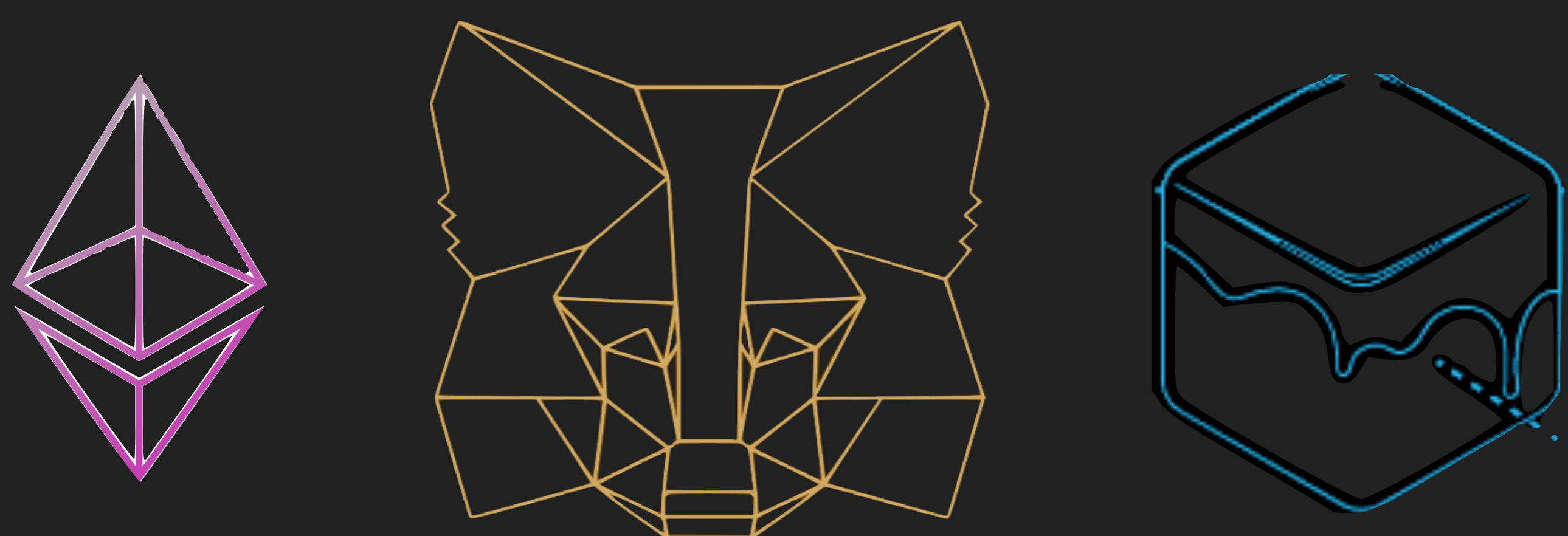


Vision:

The intention with **World of Tulips** is to develop a **Dapp** that does not give **users preferential** permissions, advantages, or incentives. Rather, it is to observe how a self sustaining community of **Tulip growers** can generate their own incentives to **breed** and **grow attractive**, unique **Tulips** that are value **secure** without a **leader** or **central authority**. Although economic aspects of trading are enabled via payment structures already provided by the **Ethereum blockchain**, the main focus is on the **Tulips** and their properties.

The **World of Tulips** is comprised of fully **virtual** resources: the **Tulips grown** in this **World** do not correspond to physical **Tulips**. In this way, the **World of Tulips** can focus on exploring how a common resource is shared and **grown** in the **blockchain** economy without retroactively force fitting 'real world' objects to the **blockchain**. The World of Tulips seeks to capture the true ethos of **blockchain decentralization** while also offering the security and stability of the well-established **Ethereum blockchain**.

Finally, the **World of Tulips** is committed to a community model whereby all **users** can participate **equally**: because all **smart contracts** and **Tulip transactions** are posted **publicly** to the **Ethereum blockchain**, no **user** can receive **preferential** or a priori knowledge that will lead to more valuable **Tulips** at the expense of other **users' Tulip** valuations. The **Tulips breed** or **dug** for are assigned their attributes **pseudo-randomly** according to the rules published **publicly** by the **World of Tulips**. As a result, although the attributes **Tulips breed** or **dug** for are not predictable, they are constrained by the defined **Tulip** taxonomy and **users** can be **secure** in the knowledge that the intrinsic value of their **Tulips** will always be consistently maintained.



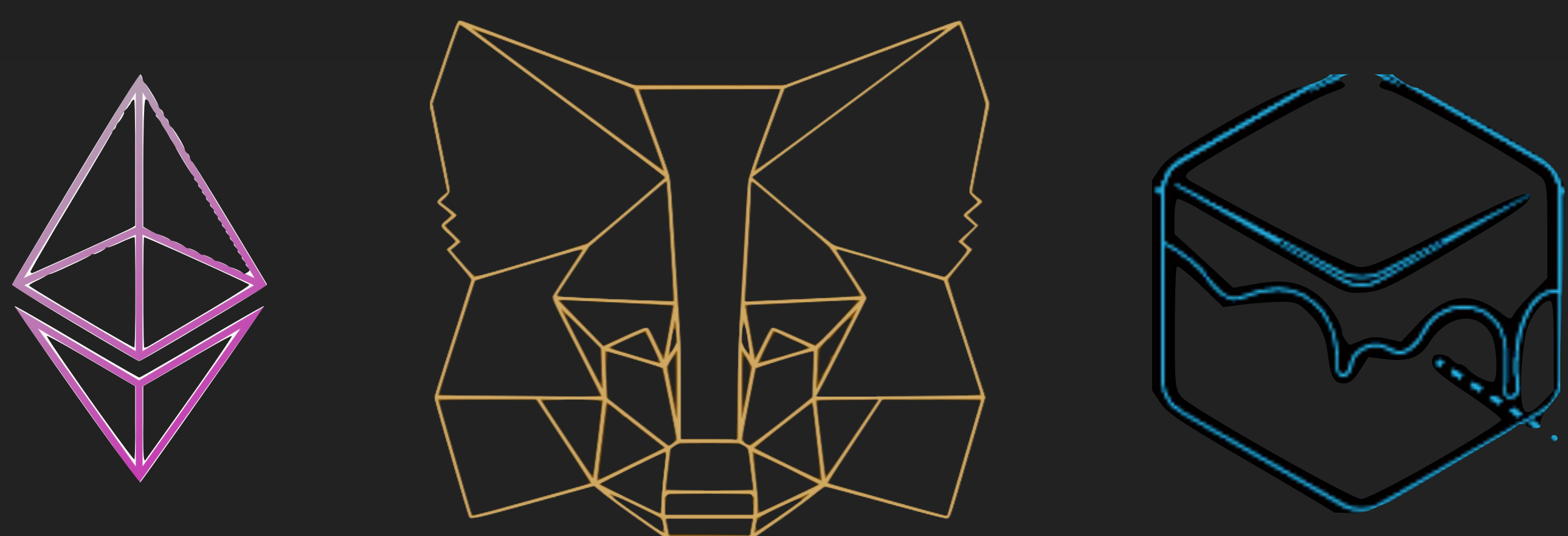
How It Works:

- ❖ **Participants** login into the **World of Tulips** using their existing **MetaMask** accounts to access the **Ethereum Mainnet**. Alternatively, **participants** may **interact** with **Tulips** using their personal **Ethereum Testnet** via **Ganache** and the **Truffle suite**.
- ❖ Once logged in, **participants** may view either their personal **Garden** which contains all **grown** or purchased **Tulips** associated with their **account**, or go to the communal **Market** to buy, **sell**, or trade **Tulips**.
- ❖ Each **Tulip** begins life as a **bulb** that grows to be a **Tulip**. Intrinsic **Tulip** value is determined by its **attractiveness**, proximity to **World genesis Generation 0**, and whether or not it has been **bred**. **Tulip Market** value is also determined by **sale transactions** recorded to the **Ethereum blockchain**.
- ❖ **Tulip bulbs** are **bred** from one parent **Tulip**. Parent **Tulips** closest to **genesis** are stronger **breeders**, but **Tulips** age and reduce in their ability to **breed** further the more times they **reproduce**. The attributes of the child **Tulip** are determined **pseudo-randomly** according to the **public World of Tulips smart contracts** published on the **Ethereum blockchain** for full **transparency**.
- ❖ Within their personal **Garden**, **participants** can view all the **Tulips** they own, linked to their account or **wallet**. Each **Tulip** is visually represented and is linked to a **profile** which outlines such properties as **colour**, **generation**, **reproduction**, and **sale** history.



How It Works:

- ❖ At deployment, the **World of Tulips** is **seeded** with a set number of **bulbs** that can be **dug** for, as denoted in the top corner of the **Garden** and **Market** pages. **Participants** can expend **gas** on the **Ethereum Mainnet** or **Testnet** to try to **dig** for a **bulb** within their own **Garden**, but all buried **Tulip bulbs** are available to all **users** to uncover. The success of **digging** up a **bulb** is determined **pseudo-randomly**: uncovered **bulbs** belong to the user that successfully **dug** for it. The number of **bulb** assets present in the **World** is always **transparent** to all **users**.
- ❖ At **Market**, **users** can list **Tulips** to **sell** or trade, or purchase **Tulips** currently on offer. **Tulip** ownership is then transferred from the **seller** to the buyer's **wallet** address and is then accessible in the **user's** personal **Garden**. The **Market** appears the same to all **users**.
- ❖ **Tulip bulbs** can also be introduced to the **World** by an **Act of God**: a **user** can choose to expend **gas** to **seed** the **World** with additional **bulbs**, available to all users to **dig** for in their personal **Gardens**. The available **bulb** count maintained at the top of the **Garden** and **Market** webpages is updated accordingly.
- ❖ **World** builders and developers are compensated for their efforts through the **donations** of other **users** who enjoy exploring the **World of Tulips**. **Donations** can be made via a **Donate** button linked to an **Ethereum MetaMask wallet** located on both personal **Garden** and communal **Market** webpages. **World** builders are incentivized to keep building to attract more **happy Tulip growers**.



Features:

Tulips are value secure:



- ❖ Tulip bulb properties and breeding results are pseudo-randomly calculated in public smart contracts published on the Ethereum blockchain.
- ❖ Tulip transparency ensures that Tulips are always recoverable and obey the Tulip taxonomy of the World

Tulips are interactive and attractive:



- ❖ Dig for bulbs buried in the World in a personal Garden
- ❖ Grow bulbs into Tulips
- ❖ Buy, sell, or trade Tulips at a communal Market, visible to all users
- ❖ Each Tulip or bulb has its own profile linked to the owner's wallet address, with all properties transparently stored on the Ethereum blockchain
- ❖ Completely virtual asset

World of Tulips is fully decentralized:



- ❖ No central authority, fully peer-to-peer (P2P)
- ❖ Complete Dapp written to Ethereum blockchain and web implementation source code publicly available

Features:

World of Tulips is community based and equal for all:

- ❖ No **user** has **preferential** permissions or incentives over others
- ❖ Asset acquisition through **digging** for bulbs or **seeding** the **World** through an **Act of God** is **pseudo-randomly** determined using a **secure** algorithm
- ❖ A *priori* knowledge does not give greater **World** control
- ❖ **Tulip** bulb properties and **breeding** results are **pseudo-randomly** calculated in public **smart contracts** published on the **Ethereum blockchain**.
- ❖ **Tulip transparency** ensures that **Tulips** are always recoverable and obey the **Tulip** taxonomy of the **World**



World of Tulips is based on the Ethereum blockchain:

- ❖ Proven, stable, open-source public distributed ledger
- ❖ **Participants** can use existing **MetaMask** account to login to access **Ethereum Mainnet**, or use **Ganache** and **Truffle suite** to access on a personal **Testnet**
- ❖ **World of Tulips** does not store login information



*Enter the **World of Tulips** today
& see what **grows***



Meet the Team:

Tulip Mania is:



- ❖ **Ali:** Graduate **student** at **UBC**, doing research on **blockchain technology** under the supervision of Dr. Ivan Beschastnikh and Dr. Chen Feng.

- ❖ **Anadi:** Graduate **student** at **UBC Sauder School of Business**. Fascinated by **blockchain** and its implication in Supply Chain **Finance**.



- ❖ **Artemij:** PhD **candidate** at **UBC**, investigating the human factors of **blockchain**-based **technologies**.

- ❖ **Dian:** PhD **student** in Electrical Engineering at **UBC**, investigating **mathematical** and social incentive mechanisms for **blockchain** actors.



- ❖ **Meng:** Graduate **student** at **UBC** supervised by Dr. Zheng Liu. Research interests include data analysis, target detection, as well as **blockchain technology**.

