Nucleus.Vision

CONNECTING THE UNCONNECTED

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MEET NUCLEUS VISION

Founded in 2014 at Harvard University, Nucleus Vision is an end-to-end technology solution that captures and provides previously unaccessed data to retailers and other 'brick and mortar' businesses through its proprietary blockchain and real time sensor technology. The solution that Nucleus Vision has built, which currently has ION Sensors deployed in 10 live retail establishments, will support a valuable data network for unique visitor IDs and corresponding user data. Our proprietary IoT sensor technology doesn't depend on any RFID, WiFi Bluetooth, or even facial recognition technologies to operate.

HARVARD BUSINESS SCHOOL

Nucleus Vision
incepted at
Harvard Business School

"The full potential of connected devices is only achieved when they are tied to individual identities"

- Gartner Report, The Identity of Things for IoT

Long term, our intention is to bridge the gap between the online and offline retail world. Our venture is backed by several prominent investors including Tim Draper, Reliance Capital and more. Telecommunications plays a vital role in the functioning of our technology, and we have partnered with Vodafone, Reliance Communications and Idea Cellular to bring our platform to market.
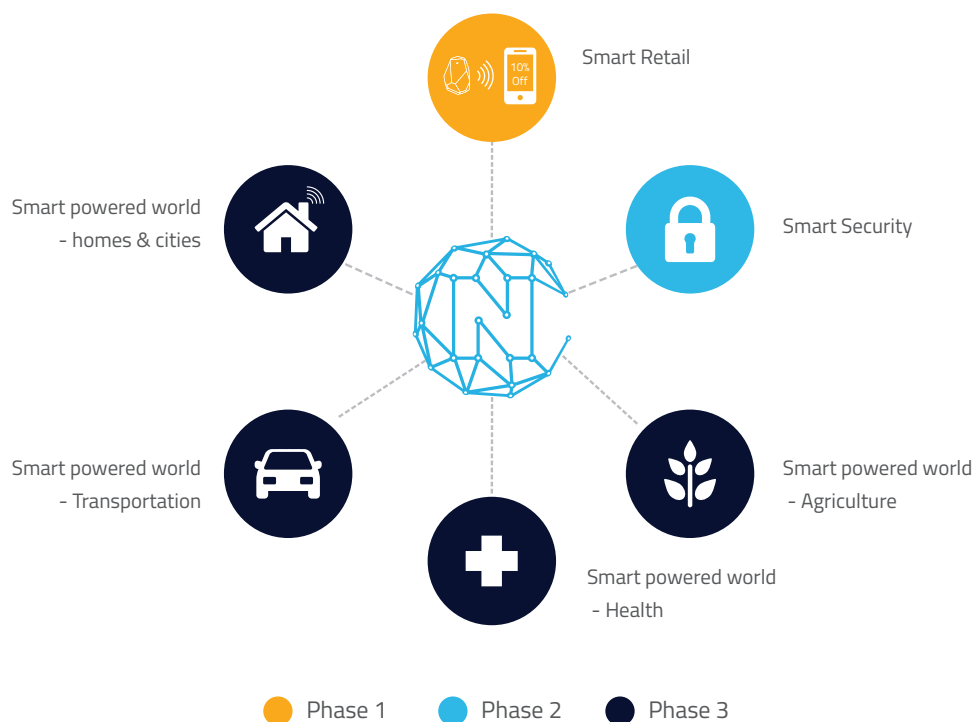
Backed by

TIM DRAPER   INDUSAGE PARTNERS   QuadGen

Partnered with

vodafone   ReliaNce Communications   !dea

(intel)   radisys

The early focus of our adoption strategy revolves around the retail sector. However, the Nucleus Vision platform has applications in various markets. We believe the following areas represent promising markets where Nucleus Vision can be applied and add value:

Nucleus Vision Roadmap

Smart Retail

Smart powered world
- homes & cities

Smart Security

Smart powered world
- Transportation

Smart powered world
- Health

Smart powered world
- Agriculture

● Phase 1   ● Phase 2   ● Phase 3

Nucleus Vision Retail

Nucleus Vision has built the world's first IOT based contactless identification system (over blockchain), while building the largest universal loyalty program using crypto-currency. Nucleus Vision' IoT solution enables retail brands around the world to build and execute a customer-focused shopping experience that leverages data from both in-person and online channels. Our platform uses blockchain, sensors, data and intelligent analytics to create automated solutions that generate customer loyalty. For retailers, Nucleus Vision's IoT solution provides insights into customer behavior that were not previously possible, such as the ability to track customer visits, to aisles browsed and paths taken in-store, favorite products and brands, and predict future customer behavior in-store. This helps create a personalized customer experience that provides for greater customer satisfaction. Through our blockchain-enabled technology, Nucleus Vision aspires to seamlessly connect the on and offline world. In the process, we aim to enhance the retail shopping experience for the 2.6 trillion walk-in customers that visit 91 million physical stores globally, all in real time.

Giant corporations around the globe have traditionally monetized their customer data solely for their own benefit, and have maintained exclusive control over said data. Nucleus Vision shifts the power of data monetization to the customers themselves, enabling them to take full control of their own data, and the power to monetize it. The nCash token will be the currency for this data exchange, to remunerate data providers and to reward customers for sharing their data. This is decentralization in its truest and strongest form.

Nucleus Vision Security

IoT solutions have already penetrated residential and industrial security systems, and it will become a huge opportunity in the coming years. As it stands, the industry is severely lacking a comprehensive and intelligent solution that is also cognizant of privacy. We believe that Nucleus Vision is primed to tackle this problem.

Nucleus Vision's smart IoT sensors can become an indispensable component of wider residential, commercial and industrial security systems by identifying potential threats and intruders, and securely transmitting this data to concerned authorities over our blockchain network.

This information can be utilized both in real time security, where premises can be monitored for unexpected persons, as well as after an incident, where our IoT sensors can be used to identify attackers. Micro-payments in the form of nCash tokens will enable this secure data transfer across various involved parties and our sensors. Nucleus Vision will enable an ecosystem of secure, trustless, independent and permission-less exchange of data over blockchain, to help make the world a more safer place for everyone.

A Smart Nucleus Vision Powered World

The Internet of Things (IoT) is already present in retail stores, buildings, homes, cars, phones and devices on our bodies. In the process, it is bringing companies closer to their customers than they have ever been before. After Nucleus Vision revolutionizes the retail and physical security industries, we have our sights set on connecting the world through an ecosystem of interconnected IoT devices. Nucleus Vision's technology team has already begun putting together the frameworks for Nucleus Vision Home, Nucleus Vision Cars, Nucleus Vision Health, Nucleus Vision Agri, Nucleus Vision City and Nucleus Vision Air. We believe that the Nucleus Vision platform has massive applications for smart communities/smart cities, agriculture, transportation, healthcare, and home monitoring.

STRENGTHS AND ADVANTAGES

Nucleus Vision has invested three years in technology research and development, to build a patent-pending sensor technology that overcomes all the drawbacks of existing retail technologies such as Bluetooth or Wi-Fi beacons, to identify in real-time any person walking in the proximity of a Nucleus Vision ION sensor.

No app required	No barriers to adoption	No Wi-Fi, Bluetooth, GPS required	Works with all smartphones & Feature phones	Provides anonymous intelligence

Groundbreaking IoT-Enabled Customer Identification

At its core, Nucleus Vision is an IoT-enabled customer identification ecosystem. Nucleus Vision's scalable technology has a 12 layer stack that effectively integrates with the technologies and systems of top technology providers such as Intel, Radysis, ODMs and geo-specific telecom carriers. Because Nucleus Vision produces data that was previously uncaptured, our technology is able to offer highly valuable insight to retailers, especially after running data through our Neuron layer.

Gini & Jony

Using Nucleus Vision's smart-sensor technology, retailers can now identify and interact directly with customers as they enter the store. International retail brands, such as Gini & Jony in India, are already using Nucleus Vision to deliver personalized offers to customers on their mobile phones. The ION Network's sensors are developed according to telco standards, to ensure the Nucleus Vision platform remains plug-and-play and follows data and privacy requirements of the global telecom industry. Over the past two years, Nucleus Vision has worked with both national and international regulatory authorities to implement applicable regulatory and privacy frameworks into our technology.

2290
Successful authorizations

2397
Recommendations & Offers sent

10
Live retail stores

47995
Unique identifications

1816
Offers availed

Data till December 2017

Differentiated, Next-Generation Product Offering

Our assessment of technologies currently available in the market has revealed several shortcomings in authentication and analytics within marketing-related IoT products. Our evaluation of these technologies demonstrated that no other product could provide more than 15% of the intelligence in the physical retail world. Because of this superior performance, retailers have expressed enthusiasm after seeing Nucleus Vision's solution in action.

Brick and mortar retail customers hardly get personalized pricing, custom offers, or preferential treatment for being a brand or store loyalist. This primarily stems from the store's inability to differentiate between customers in offline stores. With Nucleus Vision, customers get personalized pricing, accurate recommendations and real-time offers in physical brick-n-mortar stores for the very first time. Customers also earn nCash tokens each time they visit or shop at a Nucleus Vision powered store, and are empowered to monetize their shopping data as well.

PROCESS FLOW (STEP-BY-STEP)

To better explain how Nucleus Vision' technology works in practice, we have broken a recommended retail use scenario down into steps. A detailed description of each step is as follows:

Step	Description
1	Customer walks into a store
2	The customer's phone ID is recognized by an ION sensor
3	The ION sensor sends the customer's phone ID to Nucleus Vision
4	Nucleus Vision sends a text message (or push notification through a pre-install partner app), to the customer offering nCash [for opting into the store's reward program]
5	If the customer opts in, nCash is credited to his or her account (nCash can be moved to an ERC20 compliant wallet)
6	Nucleus Vision securely transfers this customer identification to the retailer over blockchain
7	Retailer maps the customer with its core system and identifies new data that can be offered by Nucleus Vision' blockchain network
8	If the Retailer has no previous shopping history on this customer, the Retailer's system automatically requests for data from Nucleus Vision's extended partner ecosystem, which is sent to other retailers and participants in the network. An incentive denominated in nCash is provided for the network participant(s) that share information.
9	Network partners set pre-defined rules to share customer data amongst friendly, non-competing entities and share the requested customer data points, if approved
10	If the network partners accept the request they further rout the authorization to the customer for sharing data through blockchain before actually sharing the data. Network partners also attach some nCash as an incentive for the user to share data.

11	Customer receives the request for sharing their data across the retail partner network
12	Customer authorizes the request and receives nCash as incentive for authorizing, and will receive a portion of the nCash transferred each time their data is exchanged on the Nucleus Vision retail network
13	If the customer authorised the data sharing the blockchain enriches the respective parameter values to retailer's smart Nucleus Vision intelligence system
14	Based on the customer's data, a unique score is generated by Nucleus Vision' Neuron technology. This score represents the customer's value to the retailer based on his or her purchase history, spending habits and other factors
15	The retailer may decide to offer nCash tokens to the customer based on his or her score. Retailers will be able to make decisions in real time within three different contexts: a) Upon entering the store (to incentivize-more visits) b) Browsing around the store (to incentivize in-store conversion) c) At the time of checkout (to increase retention and loyalty)
16	The nCash tokens also act as a universal loyalty program, where customers can use nCash as loyalty reward points across any retail partners on the Nucleus Vision network
17	Customers can cash out their nCash tokens on crypto exchanges for cash, or choose to utilize them as loyalty reward points anywhere on the Nucleus Vision ecosystem
18	Customers can optionally opt out of an enhanced & personalized shopping experience, as well as the right to earn nCash tokens, and their data will not be shared with any of the Nucleus Vision retail partners

TECHNOLOGY OVERVIEW

Nucleus Vision is composed of several technology layers, which together power our next generation platform. Nucleus Vision technology is a function of four primary components: ION, ORBIT, NEURON & nCASH

ION Sensor: Proprietary Sensor Technology

Nucleus Vision's proprietary sensor network, the ION Network, can uniquely identify and sense temperature, pressure, motion, acceleration and sound within the vicinity of the sensor. ION sensors enable retailers to capture new data on brick-and-mortar customers.

Orbit Blockchain: Authorization and Data

Nucleus Vision's blockchain platform, Orbit, is the foundation over which customer identities, customer data and the nCash tokens flow accurately and securely between all involved parties and systems.

Neuron Layer

The Nucleus Vision Neuron intelligence platform is state-of-the-art analytics engine that leverages the strength of deep learning, blockchain and IoT. The Neuron platform enables retailers to take advantage of time and opportunity when customers are most receptive. Neuron connects retailers and customers at precisely the right moment to bring an element of delight and surprise to the retailer's customer service regime.

nCash: Token-Based Payments

nCash is the decentralized cryptocurrency of the Nucleus Vision ecosystem, which is used for various transactions across Nucleus Vision. nCash serves two primary purposes: 1) it is the backbone of the Nucleus Vision Universal Loyalty Program (retailer rewards system), and 2) it is a currency used to enable the transfer of data from one party to another. Retailers in the Nucleus Vision network can reward their users with offers using the nCash, which can be redeemed across any retailer in the Nucleus Vision network. nCash is a non-mineable ERC20 Ethereum token with a supply cap of 10 billion nCash tokens.

LEADERSHIP TEAM

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Avinash Pitti
CTO

ILLINOIS INSTITUTE OF TECHNOLOGY

Brooks Atwood
Creative Director
TED Speaker

PARSONS

Subrata Siddhanta
Executive President
Retail Business

TRENT spencer's S

Our **40** member team includes **9** blockchain developers, **5** data scientists, **1** IoT platform architect, **5** marketing experts, **9** engineers, **11** operations professionals

ADVISORS

Arun Seth
Former CEO British
Telecom

Min Kim
CoFounder @ ICON Foundation

+8 more

PARTNERS

Telecom Partners

vodafone

RELIANCE
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ALPHA Networks

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