

Citios

Powered by RoboAi Alliance

An aerial photograph of a city skyline, likely Chicago, taken from a high angle. The sun is setting on the left side of the frame, casting a warm, golden glow over the city. The sky is a mix of orange, yellow, and blue. The city buildings are silhouetted against the bright sky, and the water of a lake is visible in the distance on the right.

# CitiOS

SECURELY CONNECT THE DOTS OF IOT DATA GLOBALLY

MONETIZE THE TRUE POTENTIAL OF SMART CITIES

CitiOS aligns with the next paradigm shift for smart cities where IoT devices are autonomous and able to best respond to scenarios in real time. Matching this inevitable paradigm, CitiOS provides IoT devices integrated with blockchain, MESH network and decentralized service platform. Payment between machines can be executed within seconds. Partnership for data, analytic and services are efficiently done on P2P, empowered by decentralization.

# KEY FEATURES

## Edge Computing and AI Chip Embedded

The combination of Edge Computing and NM500 AI Chips is the cutting-edge technology proposed and processed by the Alliance. The generated data of the sensors will be transferred through the latest LoRa-Private protocol.

## Autonomous IoT

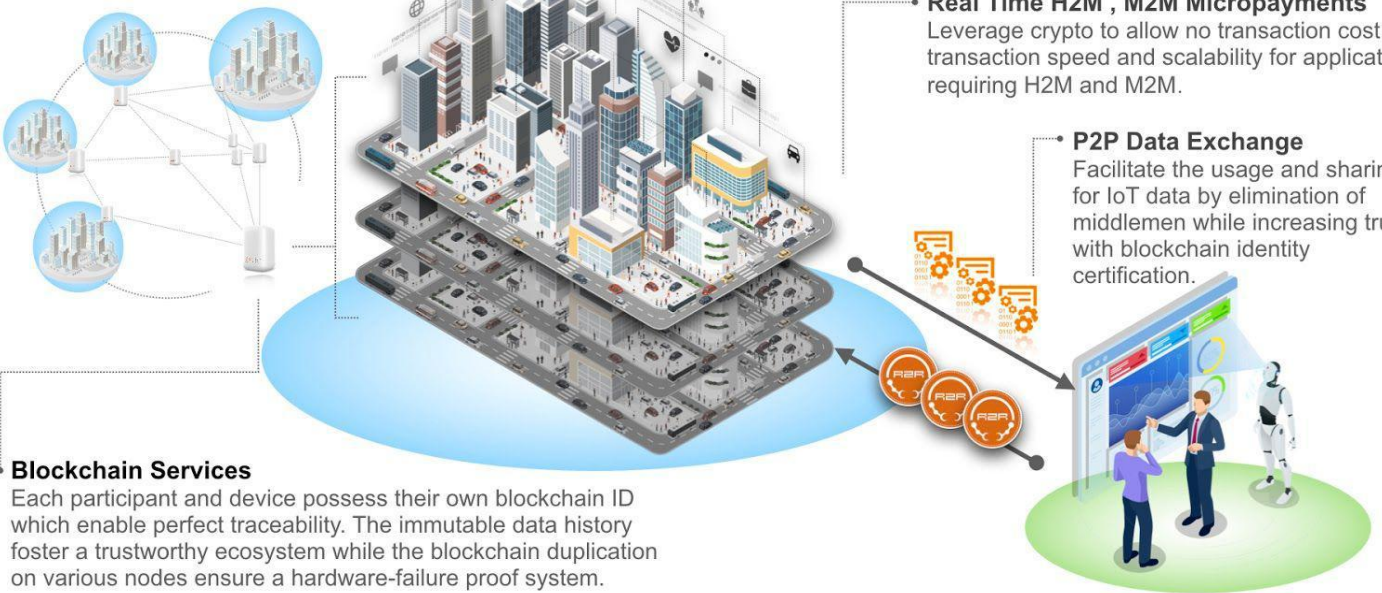
Allow IoT devices to communicate directly to each other via MESH and perform functions without relying on central server.

## Real Time H2M , M2M Micropayments

Leverage crypto to allow no transaction cost, high transaction speed and scalability for applications requiring H2M and M2M.

## P2P Data Exchange

Facilitate the usage and sharing for IoT data by elimination of middlemen while increasing trust with blockchain identity certification.



## Blockchain Services

Each participant and device possess their own blockchain ID which enable perfect traceability. The immutable data history foster a trustworthy ecosystem while the blockchain duplication on various nodes ensure a hardware-failure proof system.

# APPLICATIONS



## Structural Health Monitoring

Earthquakes and natural disasters has always been one of the biggest security concern globally. The damage to infrastructures generated by earthquakes has often caused unacceptable casualties and an irreparable lost in property value. Structural Health Monitoring (SHM) uses sensors to gather information on the condition of infrastructure. It is essential to prevent disaster, but also to offer cost-effective maintenance.

Because of the aging infrastructures, the demand for SHM is sharply increasing year after year. CitiOS Structural Health Monitoring will help to predict whether infrastructures changes in time and take necessary measures to overcome various defects. By leveraging blockchain technology, CitiOS can greatly reduce the laborious effort from manual verification of engineering, but more importantly, can save lives. CitiOS project addresses the pain-points of traditional SHM and propose an Information-driven ecosystem at the delight of the users.

### Comparison between traditional and CitiOS models

Traditional Model	CitiOS AIoT (Artificial Intelligence of Things) sensors with SHM Blockchain Model
<ul style="list-style-type: none"> <li>• High cost</li> <li>• Central Server control</li> <li>• Pay for hardware</li> <li>• Purchase contract model</li> </ul>	<ul style="list-style-type: none"> <li>• Lower installment cost</li> <li>• Distributed AIoT architecture</li> <li>• Data marketplace support</li> <li>• Open ecosystem - more services</li> </ul>

## Street Lights



As a first step towards the implementation of the holistic CiTiOS projects, one partner of our alliance mtes Neural Networks has officially announced their cutting-edge AI CCTV (closed-circuit television) System which is powered by the “most efficient and advanced solar panels in the world.” The traditional 1-function street light is now giving way to AIoT street light which can be leverage but not limited to the following scenario: Alert police of dangerous driving, alert police in case of accident, alert police of suspicious behavior or burglar, notify landlord and fire department in case of fire, detect abnormal weather conditions and report to meteorological authority.

CitiOS street lights need to record digital evidence of tremendous importance in case of crimes, accidents and others. On the other hand, it needs to ensure privacy and tamper proof architecture. CitiOS blockchain can responds to those issues by providing a permission-based access with accountability, tamper-proof storage & auditable in case of legal mitigation. More information:

- <http://www.risktaisaku.com/articles/-/12912>

### Comparison between traditional and CitiOS models

Traditional Model	CitiOS AIoT (Artificial Intelligence of Things) Street Lights
<ul style="list-style-type: none"><li>• 1 function street light</li></ul>	<ul style="list-style-type: none"><li>• Self-Powered</li><li>• Easy Installation (no need to connect to electrical grid)</li><li>• Inexpensive Installation Cost</li><li>• Install anywhere</li><li>• Cameras are equipped AI function</li><li>• Digital evidences on Blockchain</li></ul>

## Street lights in Africa: Kenya is leading the way



Africa's electrification rate is the lowest in the world, close to 43%. In the last 2 years, Kenya put tremendous effort to develop their infrastructure and reached 73% electrification rate in 2018 (compare to 56% in 2016). However, the cost of electrification infrastructure is too high of a burden for many suburbs and rural regions. The government is therefore looking into alternative technologies that provide higher cost-effective replacement in comparison to a full-fledge infrastructure. CitiOS street lights match perfectly their requirements for an independant all-in-one plug-n-play solution. As such, it is considered for a nation-wide implementation in targeted areas.

The expected benefits are as following:

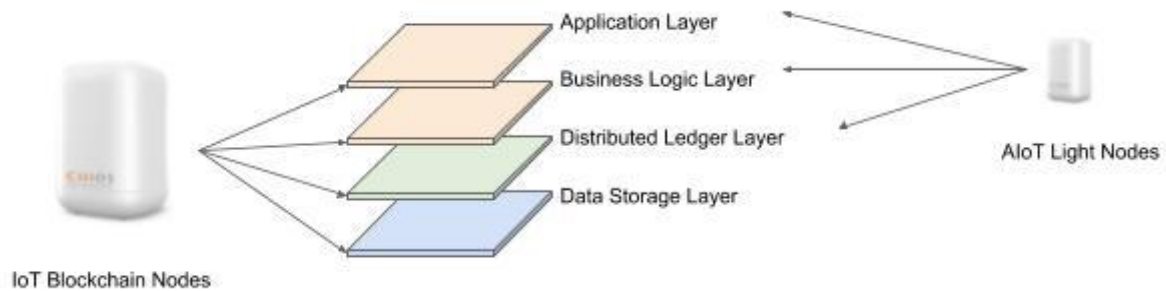
- Accident prevention
- Crime prevention
- Enhance public security
- Economic activities increase
- Tourism increase



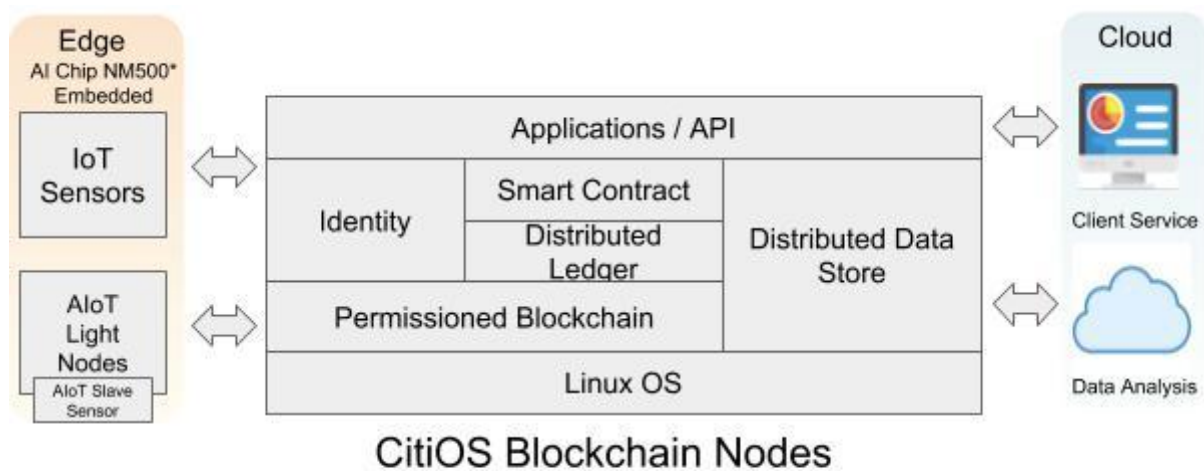
**The rural communities will be benefiting the most from CitiOS street lights**

# CitiOS TECHNOLOGY

## Blockchain Node Type



## CitiOS Blockchain Software Stack



\*Preliminary Detection, Analysis, and Alarming

The blockchain architecture encompasses all the previous software needed to manage IoT data.

- Replaces traditional database with secure ledger technology
- Allows third-party applications to integrate with API
- Provide integrated device identity for traceability
- Run on Corda technology with Linux OS, no inherent cost

# CONTACT INFORMATION

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**Join CitiOS Ecosystem Now!**