



## Oaken Prototype Blockchain & IoT Gateways

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*ACORNS Node Mk.1*  
*ACORNS Node Mk.2*

### **ACORNS: Autonomous Communication Over Redundant Node Systems**

Our ACORNS hardware product is a secure, autonomous, machine to machine platform to provide the underlying infrastructure needed to power smart cities via the internet of things and the internet of money.

ACORNS devices run Linux OS, and come bundled with all necessary applications in order to enable real world interaction between machines and smart contracts. We have currently only performed testing utilizing Ethereum.org's blockchain and IPFS, but we can customize our ACORNS devices to be deployed on a variety of other public & permissioned blockchain platforms.

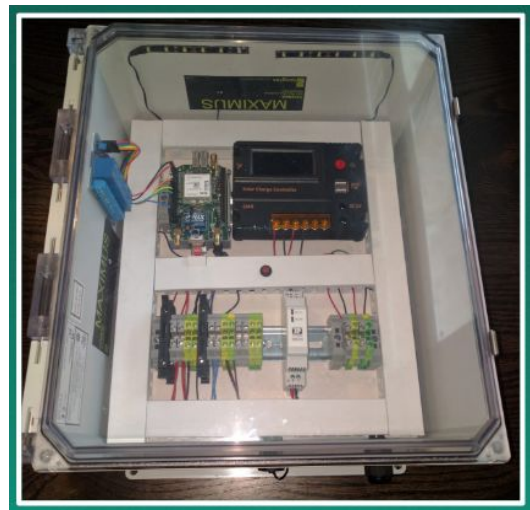
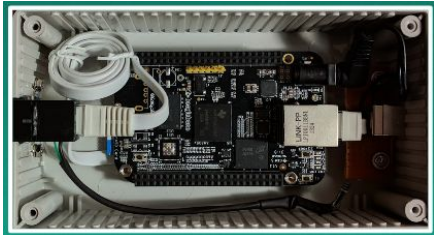
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**ACORNS Node Proto Mk.1**  
Residential/Commercial Indoor



**ACORNS Node Proto Mk.2**  
Industrial/Institutional Exterior



## ACORNS Node Proto Mk.1

### Specifications

#### Main Board:

- Beaglebone Black
  - Processor
    - TI Sitara  
AM3358AZCZ100
    - 1 GHz  
ARM@Cortex™-A8
    - Programmable  
Real-Time Unit  
Subsystem
  - Memory
    - SDRAM: 512MB  
DDR3L 800MHZ
    - Onboard Flash: 4GB  
eMMC
  - Storage
    - 64GB microSD

#### Enclosure:

- PVC enclosure
- Fanless design
- DIN-rail mountable
- Dimensions:

#### External Connectors:

- USB Type 'B'
- RJ45
- DB9 Connector
- I/O Phoenix Connector

#### Power:

- 5vdc @ 1.5A

#### Supported Protocols:

- Ethernet
- Wireless 802.11n
- USB
- GPIO
- I2c
- SPI
- RS485
- CANbus
- Xbee

#### Environmental:

- 0° C to +50° C

## ACORNS Node Proto Mk.2

### Specifications

#### Main Board:

- Beaglebone Black Industrial
  - Processor
    - TI Sitara  
AM3358AZCZ100
    - 1 GHz  
ARM@Cortex™-A8
    - Programmable  
Real-Time Unit  
Subsystem
  - Memory
    - SDRAM: 512MB  
DDR3L 800MHZ
    - Onboard Flash: 4GB  
eMMC
  - Storage
    - 64GB microSD

#### Enclosure:

- NEMA enclosure
- IP66 rated
- Wall or Pole mount(kit available)
- Dimensions:

#### External Connectors:

- Watertight electrical connector
- Watertight RJ45 connector

#### Power:

- 5vdc @ 2A
- 12vdc 18aH Deep Cycle Battery
- 100W Solar Panel
- 20A Solar Charger

#### Supported Protocols:

- Ethernet
- LTE with HSPA+ fallback\*
- GPS & GLONASS
- USB
- GPIO
- I2c
- SPI
- RS485
- CANbus
- Xbee

#### Environmental:

- -40° C to +85° C (excluding Battery)
- Battery: batteries may be discharged over a temperature range of -40° C to +60° C and charged at temperatures ranging from -20° C to +50° C



## ACORNS Node Proto Mk.1

Specifications cont'd

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### Software:

- Linux - Debian Jessie
- Blockchain Client
  - Geth ver. 1.5.x (Light Mode)
- Distributed Storage
  - IPFS ver. 1.4.x
  - SWARM (coming soon)
- Smart Contract Language
  - Solidity ver. 0.4.6
- Development Language
  - NodeJS ver. 7.x

## ACORNS Node Proto Mk.2

Specifications cont'd

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### Software:

- Linux - Debian Jessie
- Blockchain Client
  - Geth ver. 1.5.x (Light Mode)
- Distributed Storage
  - IPFS ver. 1.4.x
  - SWARM alpha(coming soon)
- Smart Contract Language
  - Solidity ver. 0.4.6
- Development Language
  - NodeJS ver. 7.x

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## OUR VISION

Our overall project vision is to be THE IOT hardware and distributed software platform that powers smart cities, with automated machine to machine controls and TRUE value transfer.



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Feel free to contact us at [projectoaken@gmail.com](mailto:projectoaken@gmail.com)

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Please visit [projectoaken.com](http://projectoaken.com) for more information

