





**Hudson Jameson**

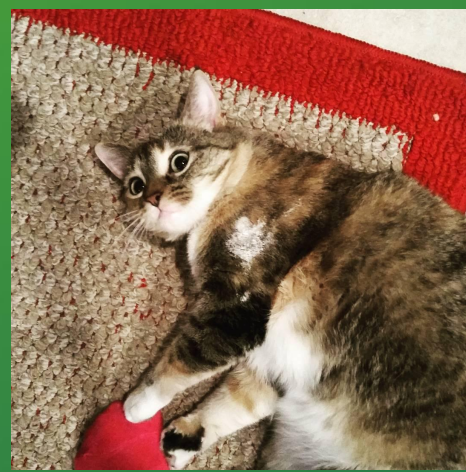
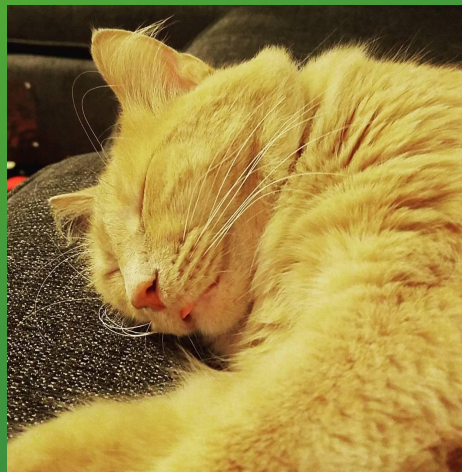
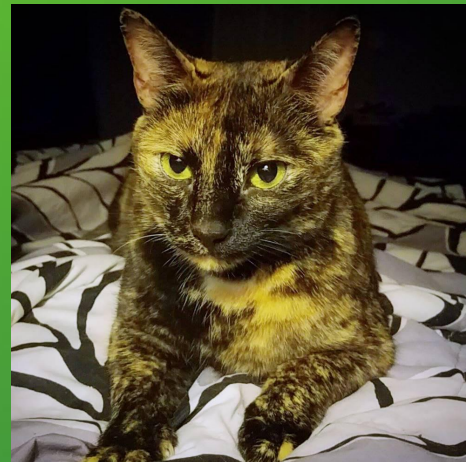
Involved in cryptocurrency/blockchain space since 2011.

USAA: 2014-2016

Ethereum Foundation: 2016-current

Oaken Innovations: 2016-current

1 Wife & 3 Cats



# The Team



John Gerryts



Laney Fisher



Hudson Jameson



Shuang "Lex" Liang



James Johnson

# Secure Blockchain + IoT Platform

- Power Smart Cities and Smart Assets
- Automated M2M Communications
- Automated Value Transfer



**OAKEN**  
INNOVATIONS

# Why IoT Needs Blockchain



PRO@°.🍍🦉  
@\_pronto\_

Follow

Not to raise alarm here or anything, but I'm unable to turn off my #IoT oven ever since #s3 went down...

It's getting kinda toasty in here

RETWEETS

621

LIKES

940

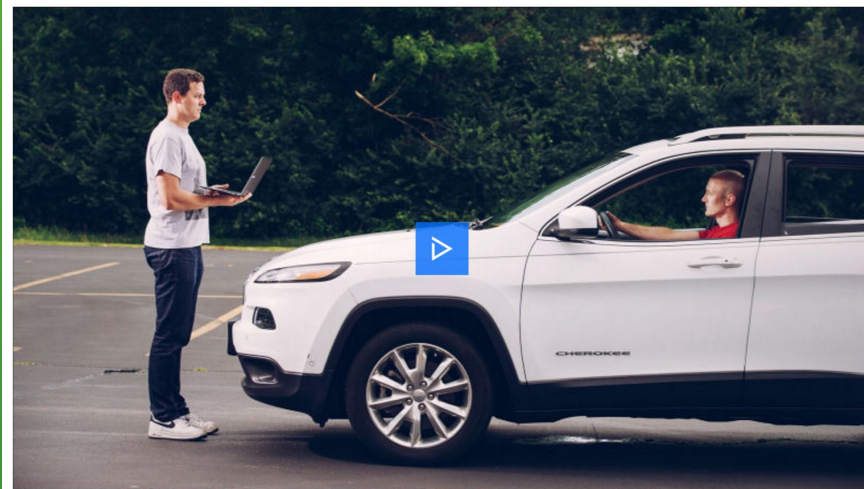


1:12 PM - 28 Feb 2017

41 621 940

ANDY GREENBERG SECURITY 07.21.15 6:00 AM

## HACKERS REMOTELY KILL A JEEP ON THE HIGHWAY—WITH ME IN IT



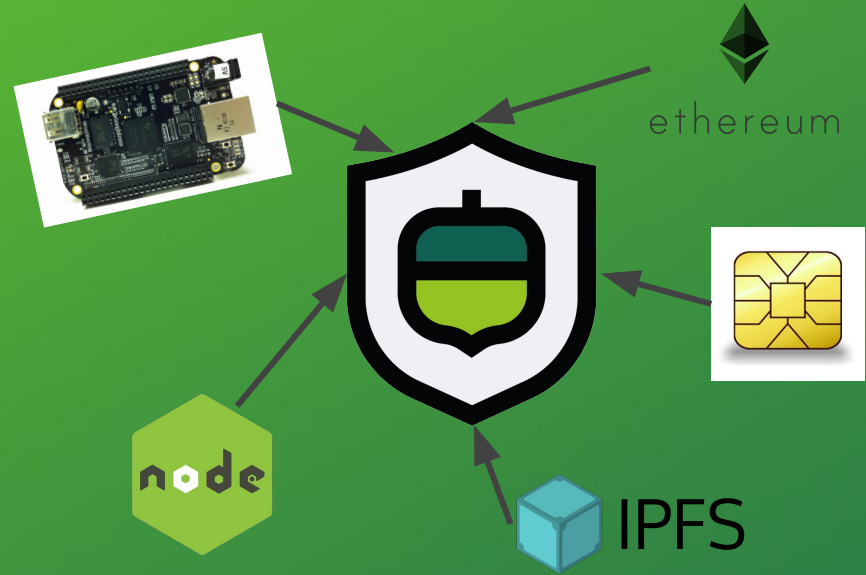
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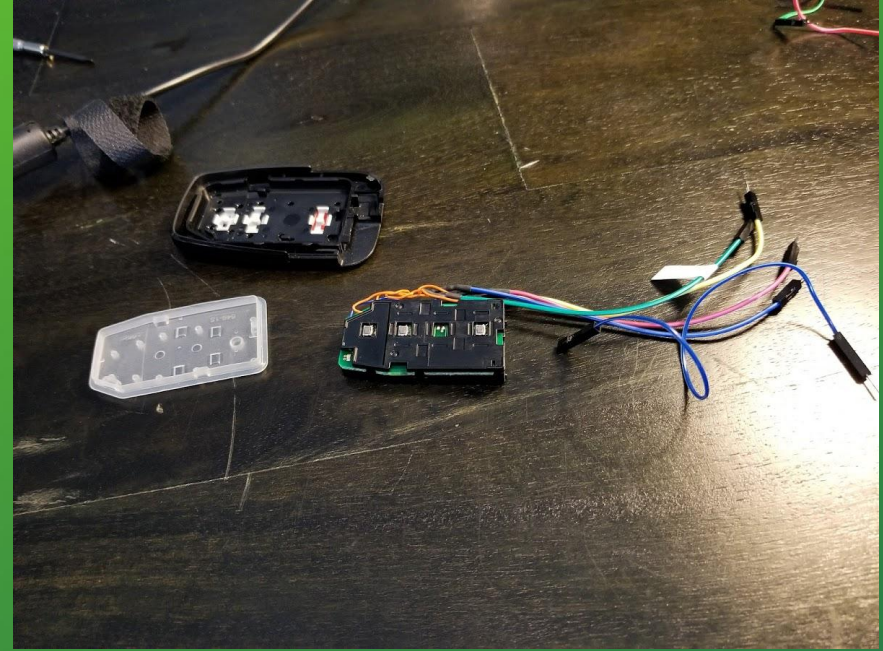
# The Oaken Platform

The Oaken platform is made of A.C.O.R.N.S (Autonomous Communication Over Redundant Nodes).

ACORNS provide a layer of security to both the hardware and software components of an IoT network.



# Building an ACORN



# Building an ACORN





# Car Share Demo

- ★ Demonstrate disintermediation of Hertz.
- ★ Built in collaboration with Toyota.
- ★ Back-end using almost entirely decentralized tech.
- ★ Debuted at Consensus 2017

## Built Using



React Native



ethereum



IPFS

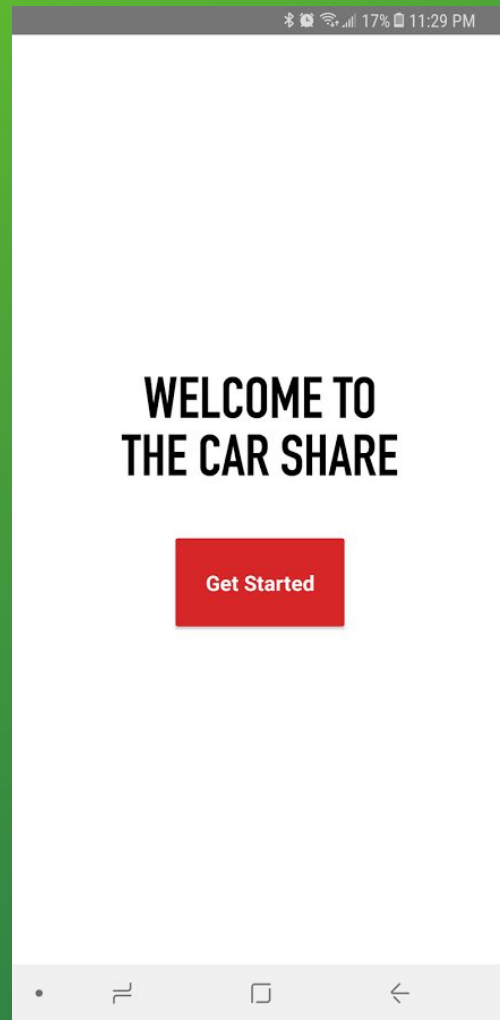
MQTT



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INNOVATIONS

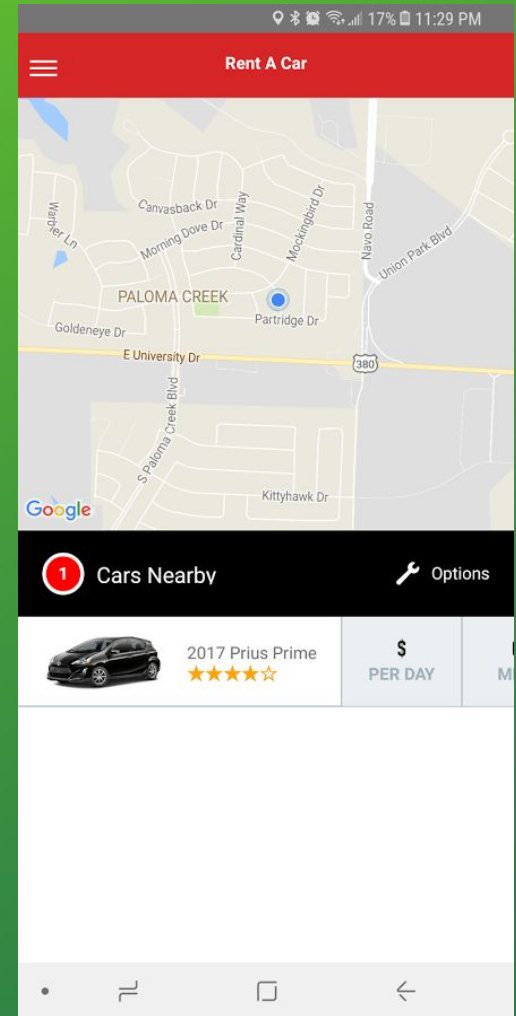


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# Car Share Demo

- ★ Log in using Ethereum account.
- ★ Public key cryptography
  - Built in identity
  - Client side
  - Self-sovereign
- ★ Hardware
  - Raspberry Pi
  - HSM w/ custom firmware
  - Hacked Toyota Prius key fob
  - GPS antenna



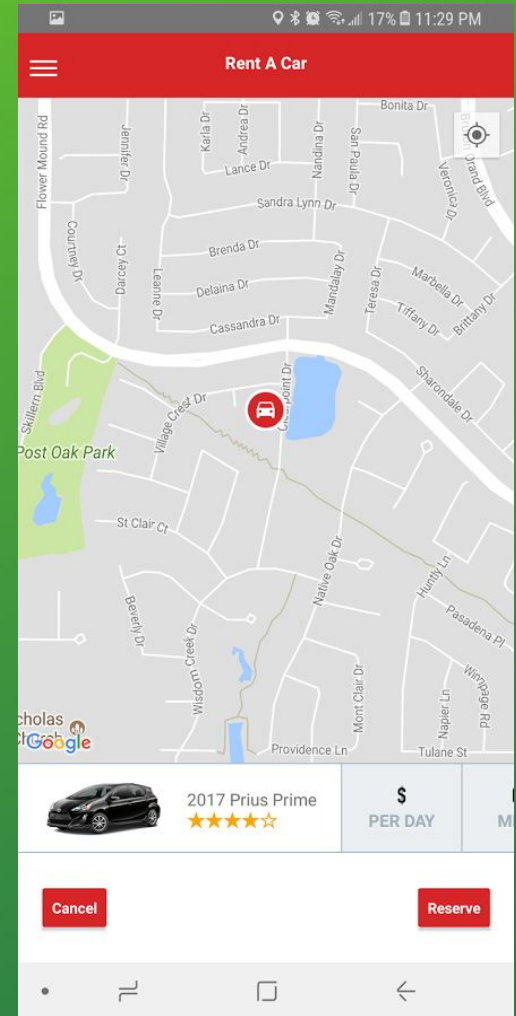
# Car Share Demo

## ★ Frontend

- React Native
- Custom built IPFS React Native module
  - Displays data stored in nested JSON files
- Google Maps

## ★ Networks

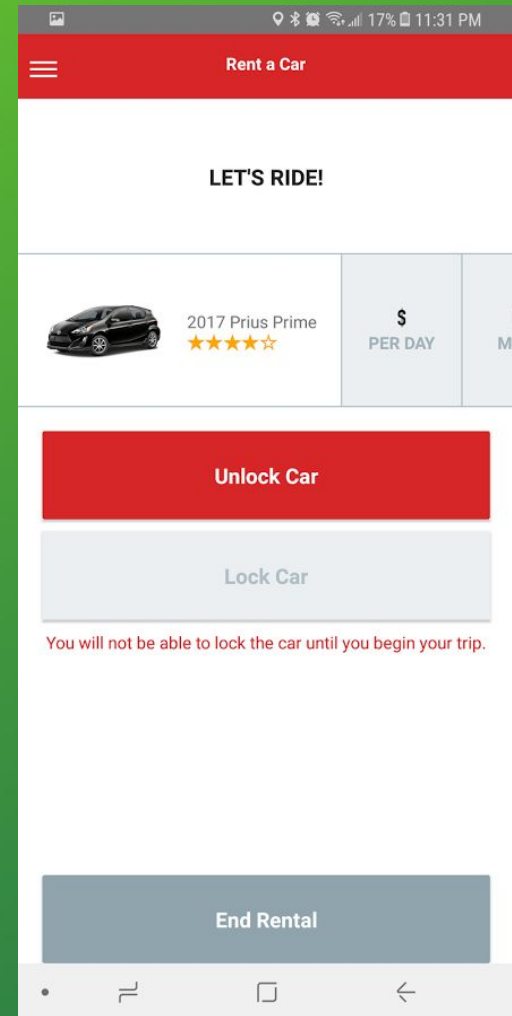
- Ethereum connection using Infura
- Testing using Metamask and Ropsten/Rinkeby testnets
- MQTT broker (could be replaced with IPFS pub/sub)



# Car Share Demo

## ★ Backend

- Ethereum
  - Authentication
  - Payment
- IPFS
  - Ephemeral data store
- MQTT
  - Pub-sub platform
  - Modified MQTT for Ethereum key signing
  - Secure car locking/unlocking





# Value of ACORNs

## ★ Security

- Software
  - Smart contract on a blockchain allows only specific addresses to unlock the car.
  - No way to spoof it
- Hardware
  - Tamper resistant HSM

## ★ Uses

- Car owners to monetize excess capacity
- Common data platform framework market
- Car history



# Contact

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