

## A collection of various smart home and IoT icons surrounding the central text "Internet of Things". The icons include a location pin, a water drop, a sun, a game controller, a bell, a printer, a cloud with rain, a toaster, a laptop, a coffee maker, a light bulb, a house with a car, a "HUB" box, a smartphone, a fan, a musical note, a lamp, a washing machine, a three-bladed fan, a coffee grinder, a power outlet, a temperature gauge showing 74°, a door, a speaker, a fire flame, a TV, and a circular arrow icon. The central text "Internet of Things" is written in a blue, sans-serif font.



# TOPICS

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IoT OPPORTUNITIES

DIFFICULTIES OF IoT

IOTAS

SOLUTIONS

WRAP UP

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**20 BILLION**

DEVICES WILL BE CONNECTED BY

**2020**



Connected Devices

The image features a central text label 'Connected Devices' in a blue, sans-serif font. Surrounding this text are numerous small, light-gray line-art icons representing various smart home and IoT devices. These icons include a location pin, a water drop, a sun, a game controller, a bell, a printer, a cloud with rain, a toaster, a laptop, a coffee maker, a light bulb, a house with a car inside, a 'HUB' box, a smartphone, a fan, a musical note, a lamp, a washing machine, a three-bladed fan, a water bottle, a power outlet, a temperature gauge showing 74°, a door, a speaker, a fire flame, a television, and a circular arrow icon. The icons are scattered around the central text, creating a sense of a diverse ecosystem of connected devices.





...it's also about  
**simplifying** (complex) systems  
& **connecting** people



# Challenges

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## **Why is IoT a challenging field?**

- Software? Hardware? Both?
- A technology that has had setbacks
- Lots of 'parts' - it takes a village
- Maintenance
- We have targeted a very specific audience



A photograph of a modern living and dining area, overlaid with a semi-transparent teal filter. The scene includes a light-colored sofa with patterned cushions, a wooden dining table with a wire basket on it, and a kitchen area with a microwave and cabinets. A large window with white blinds is in the background. The text "IoT in the Home" is centered in white, with "Home" in a bold font.

# IoT in the **Home**



# Opportunities

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- Save \$ on utility bills
- Peace of mind
- Comfort and convenience
- Crowd sourced rules
- Machine learning



# Social Impact When an Apartment Autosaves Energy

Potential energy saving of an IOTAS installed apartment: **6.74 kWh/sq.ft-yr**

18M apartments: **17.7B sq.ft**

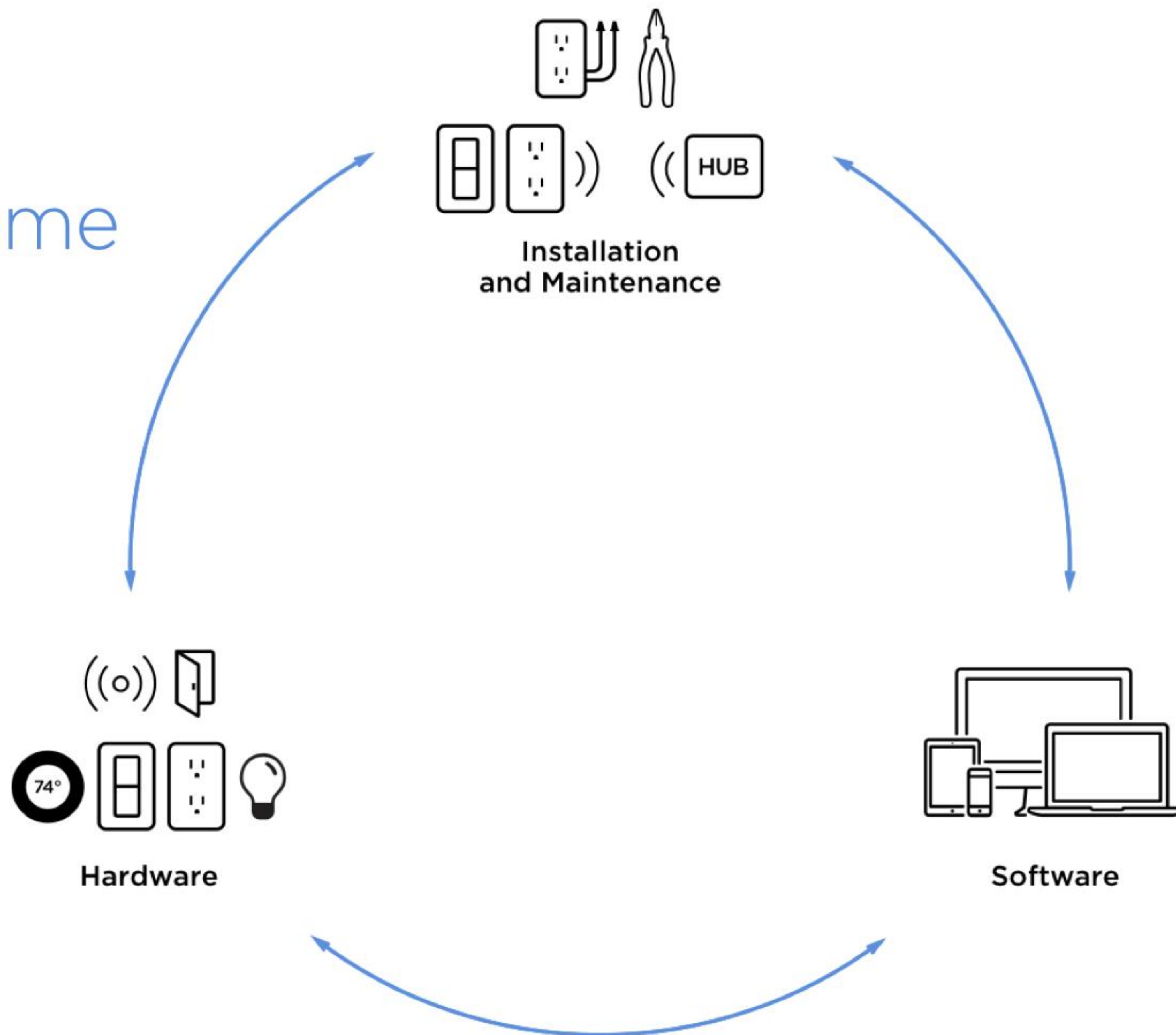
## WHICH IS EQUIVALENT TO:





# Difficulties of IoT in the Home

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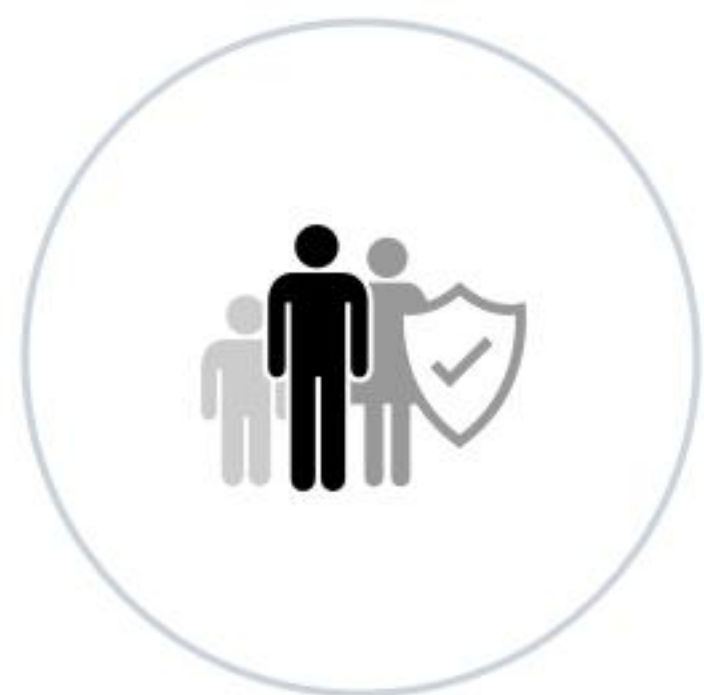


# IoT in the **Community**



# Opportunities

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## **Public Health and Safety**

- Improve emergency services
- Monitoring street lights
- Structural safety



# Opportunities

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## **Traffic Congestion**

- Adaptive traffic management
- Smart parking
- Autonomous vehicles



# Opportunities

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## **Air & Water Quality**

- Middle to low income countries most effects
- Reduced air pollution
- Water management



# Opportunities

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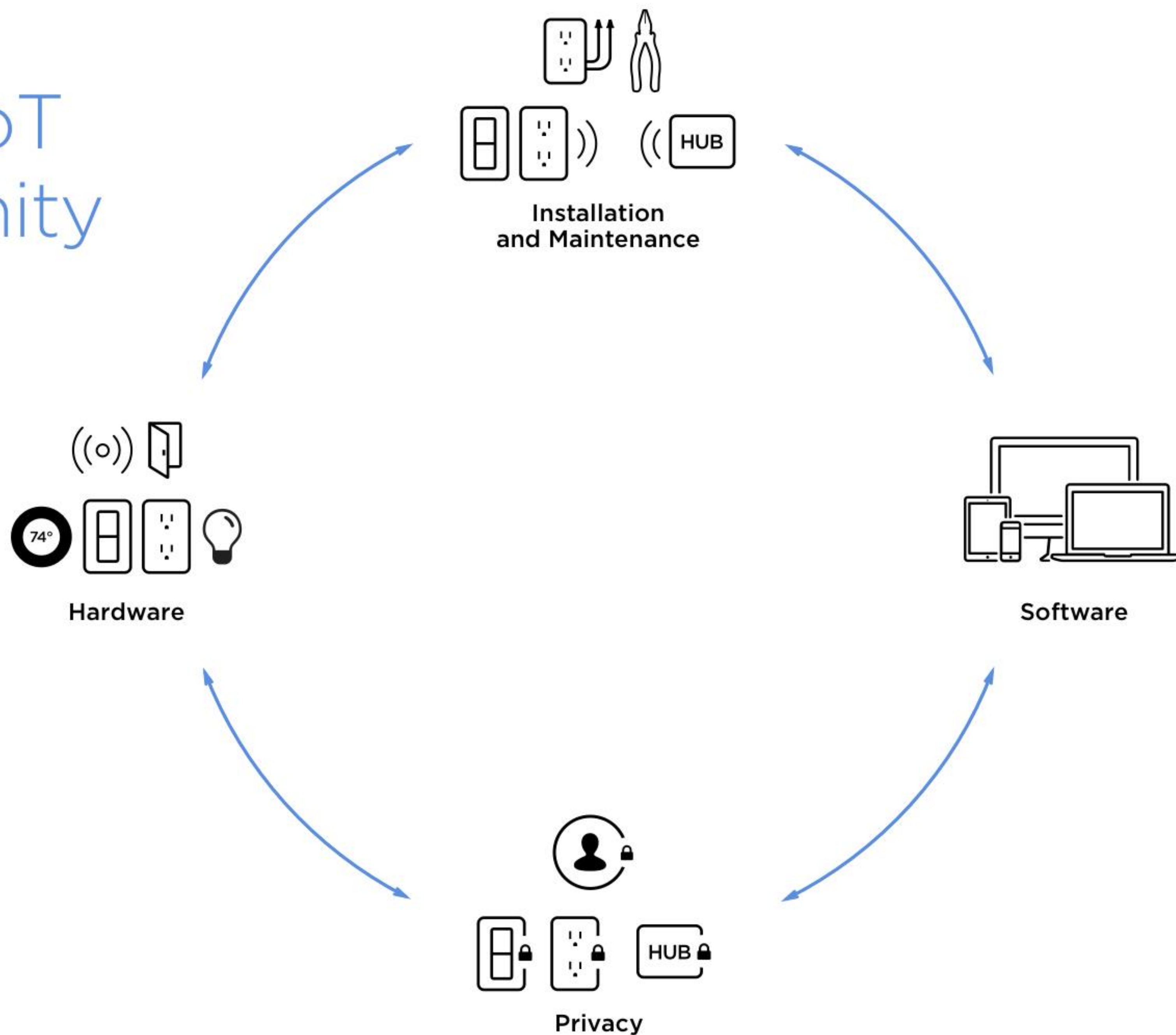
## **Improve Quality of Life**

- Lives saved by fewer traffic accidents
- Crime prevention
- Cleaner streets



# Difficulties of IoT in the Community

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An aerial photograph of a dense city skyline, likely Chicago, featuring prominent skyscrapers such as the Willis Tower. The image is overlaid with a semi-transparent teal filter. The word "IOTAS" is centered in the image in a large, white, bold, sans-serif font.

# IOTAS

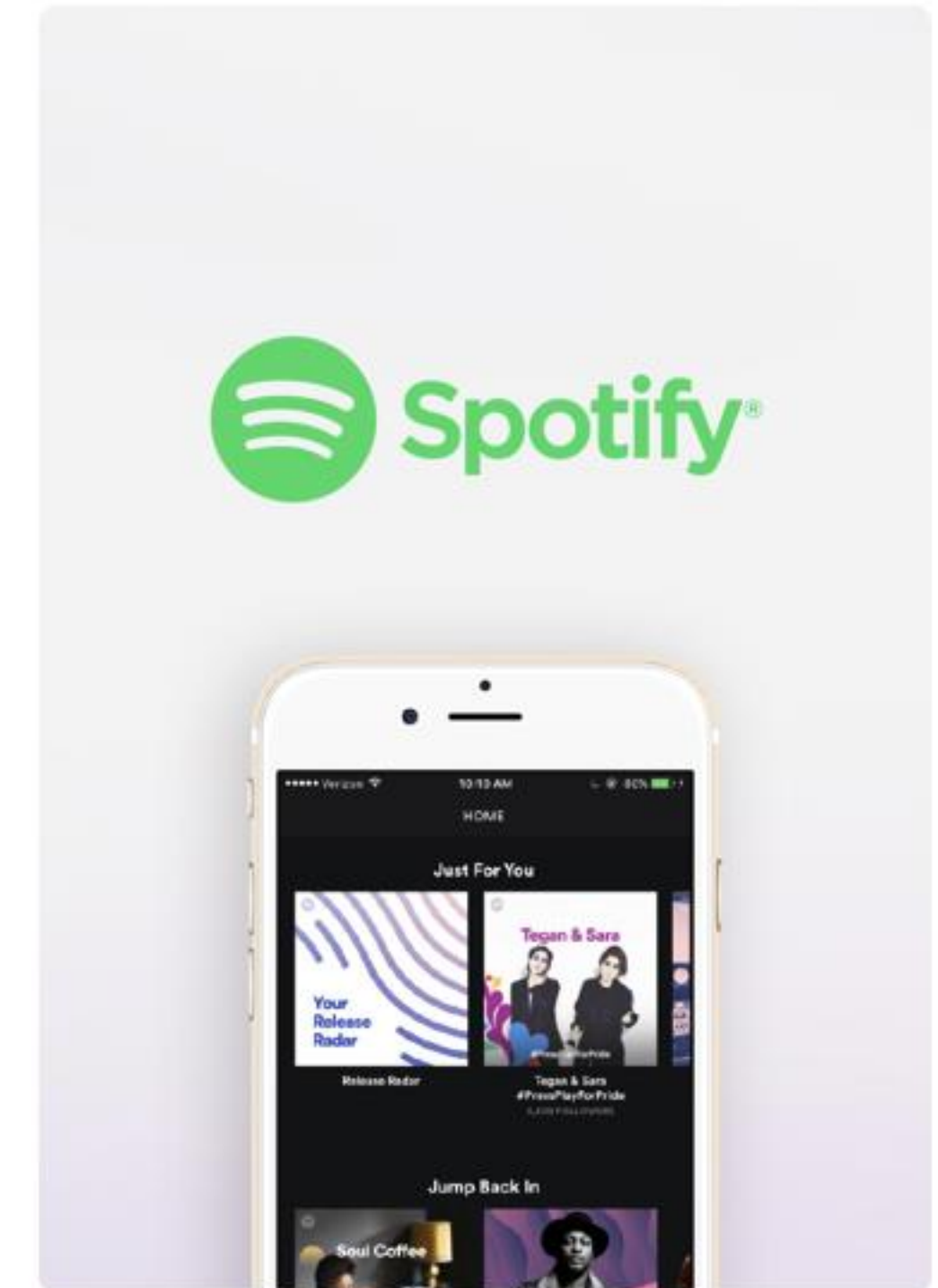
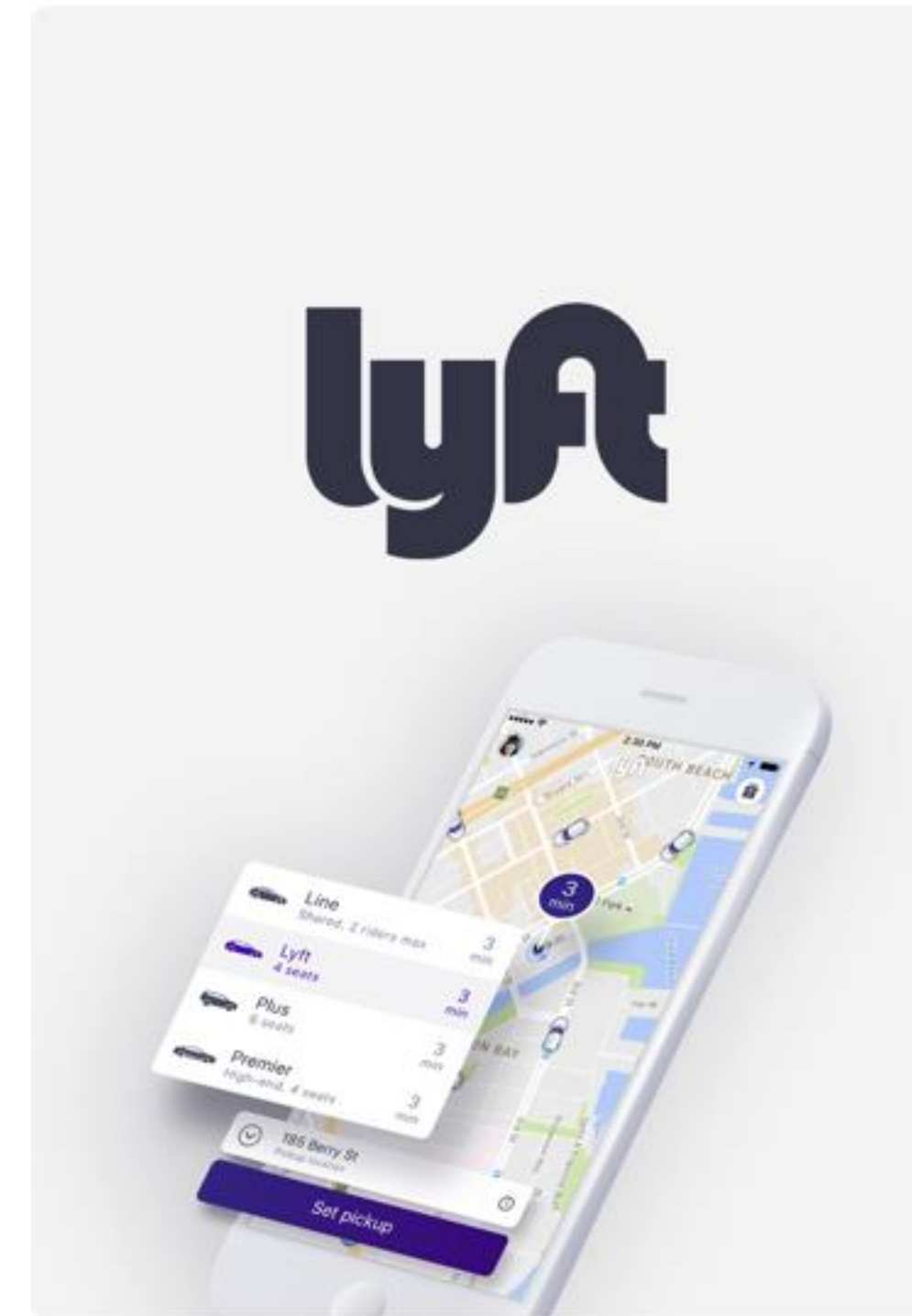
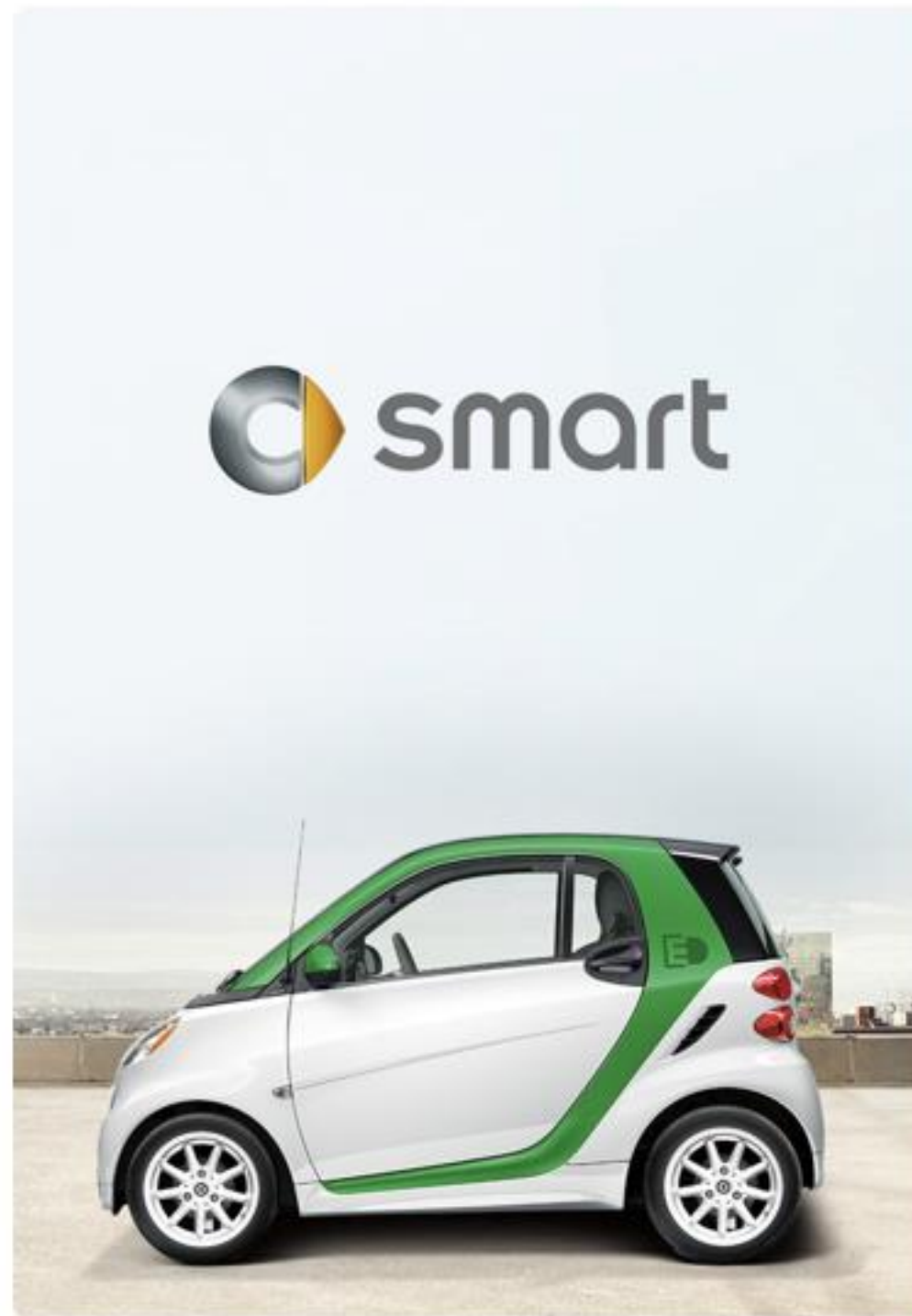


A person with curly hair is holding a white smartphone in their right hand. The phone's screen displays a home screen with several colorful app icons. The background shows a kitchen with a white countertop, a microwave, and a wooden chair. The entire image is overlaid with a semi-transparent blue filter. A white rectangular box is centered over the phone and the text.

# The New **Generation**



Access to value is more important  
than ownership.





# What Do We Do?

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## **Smart Apartments/MFDs**

- Pre-Install all hardware
- Pre-provision all devices
- Provide on-going services



# How Much?

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27%

## **Energy Savings per Apartment**

(Based on independent 3rd party study)

- Research grant with Oregon Best to prove this out.



# IoT Automation & Data Science Opportunities

**Unit 1/1-D - ELECTRICAL**  
1/4" = 1'-0" TYPE A, TYPE B

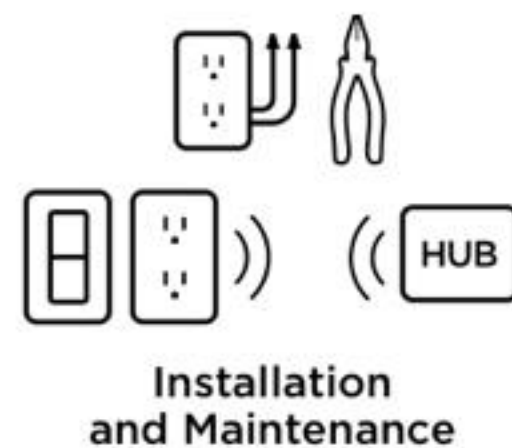
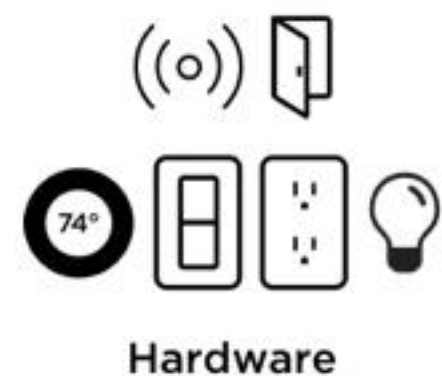
- # We analyze in real-time the data for continuous improvement
- Lab-like controlled environment
  - Minimal variables to gather data
  - Entire home provides data
  - Sec by sec from all connected devices
  - Living Profile (lifestyle analysis)



# Revisit IoT Problems

## Tested Devices

- Pre-installed
- Professional Installs
- 'Certified' partners
- Standard protocols



## Working with Builders/Provisioning

- Working with builders/owners
- Smart provisioning (patent pending)

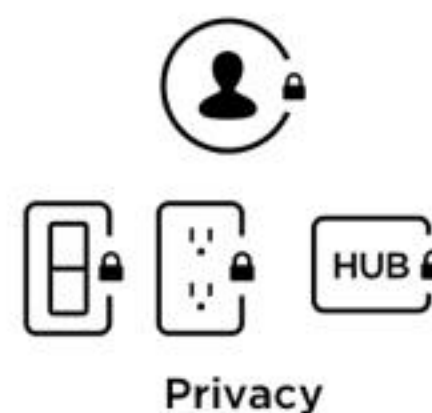
## Experience

- Open source
- Cross-platform
- Minimal common experience



## Personal Control

- Tiered authentication
- Access controls
- Incident logging/reporting





# Energy Saving Use Case

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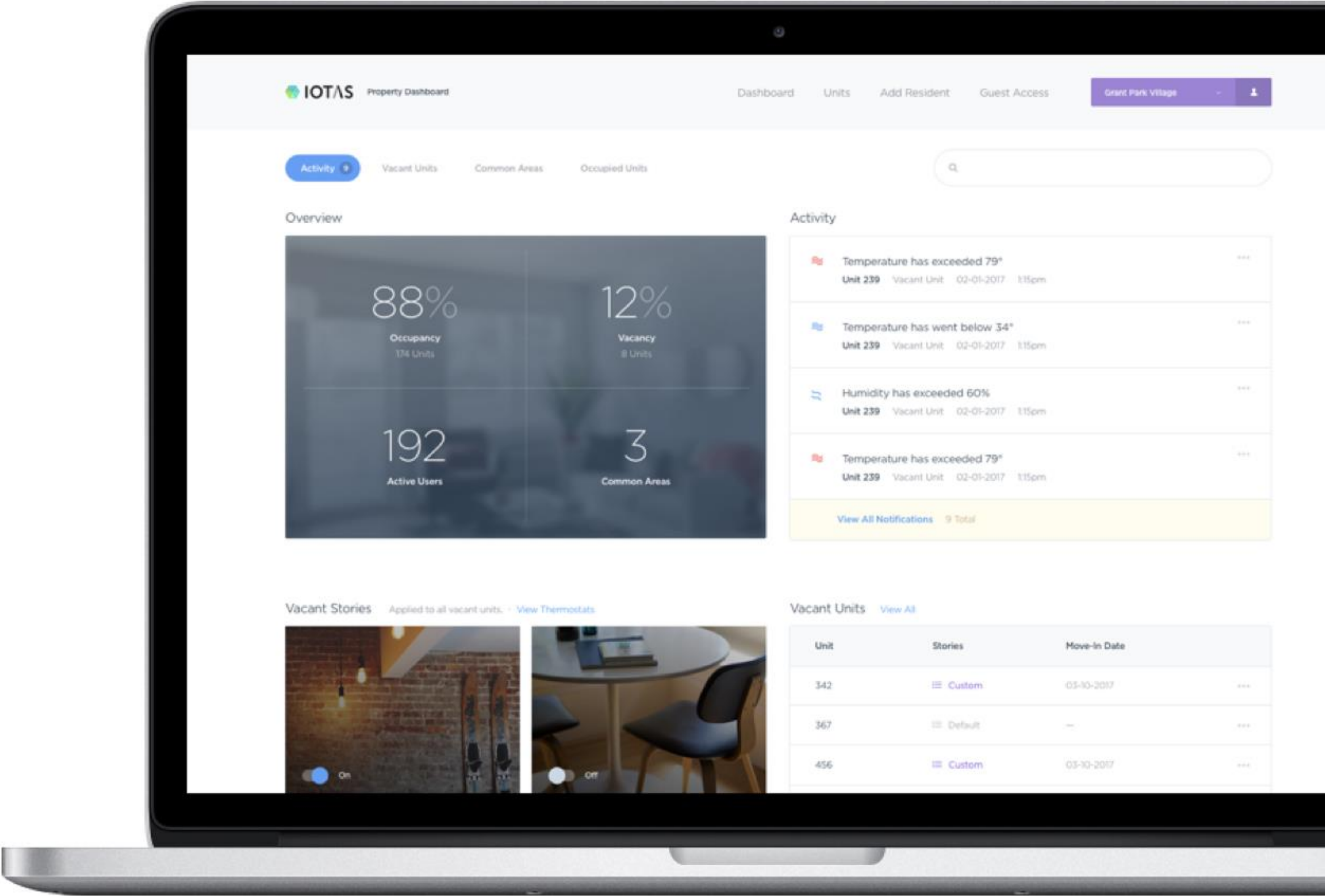


## **Vacant Units**

- 10% of units vacant
- Security
- Showing
- Emergency notifications



# Property Dashboard





# The Future

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**As IoT devices get more ubiquitous, how you use generated data will be the differentiator**

- Apps and continuous improvement
- Living Profile (lifestyle analysis)
- Crowd-sourced rules
- Shared profits
- AI



# We Upgrade Apartments with Apps, Data & A.I.



## Crowd Sourced Rules

- John is saving 12% on energy
- Everyone else is saving only 8%.
- Using John's Living Profile, IOTAS rolls out new rule to save everyone 12%

*"Darren, we have a new rule from your neighbor that can save you 12% on energy. Want to try it out?"*

## Public Transit 3rd Party App

IOTAS integrates with public transit to notify residents when it's time to leave to catch their train or bus.

IOTAS starts blinking the entryway lights to let Darren know he needs to leave now to catch his bus.

## Weather 3rd Party App

It's raining outside.

IOTAS starts blinking the closet lights to let Darren know he needs to wear his raincoat.

**IOTAS**



# THANK YOU

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