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# kerby

- *your curbside parking buddy* -

Team C1

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# Technology is Revolutionizing City Parking

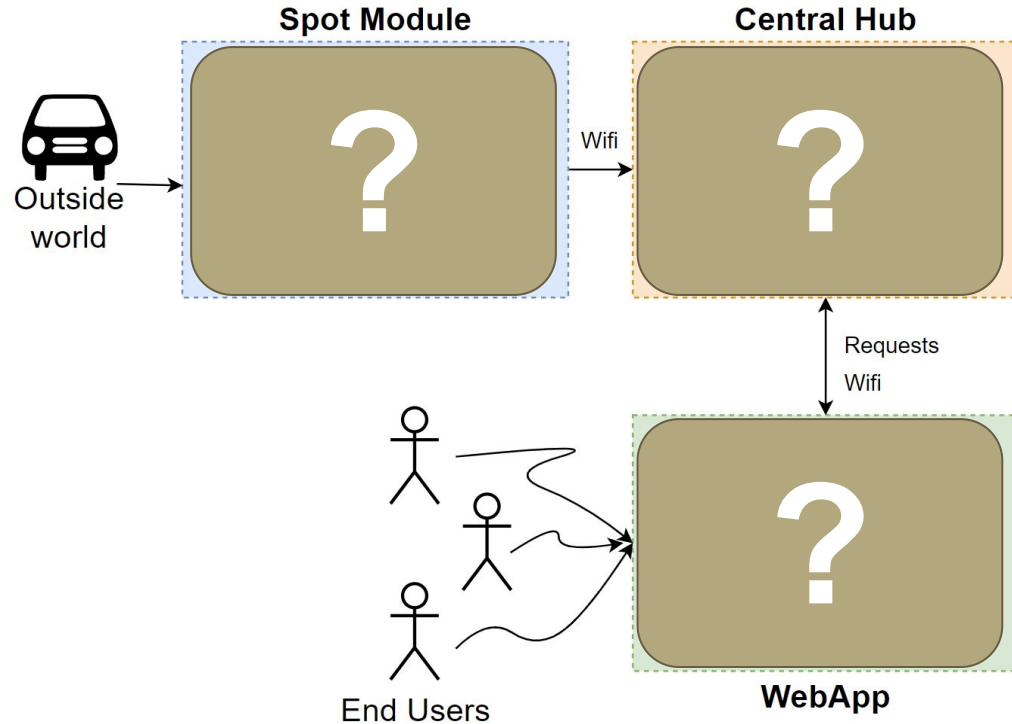


**SPOT  
HERO**



...but current apps  
ignore street side  
parking entirely....

# Kerby is a Centralized Smart City Parking Solution



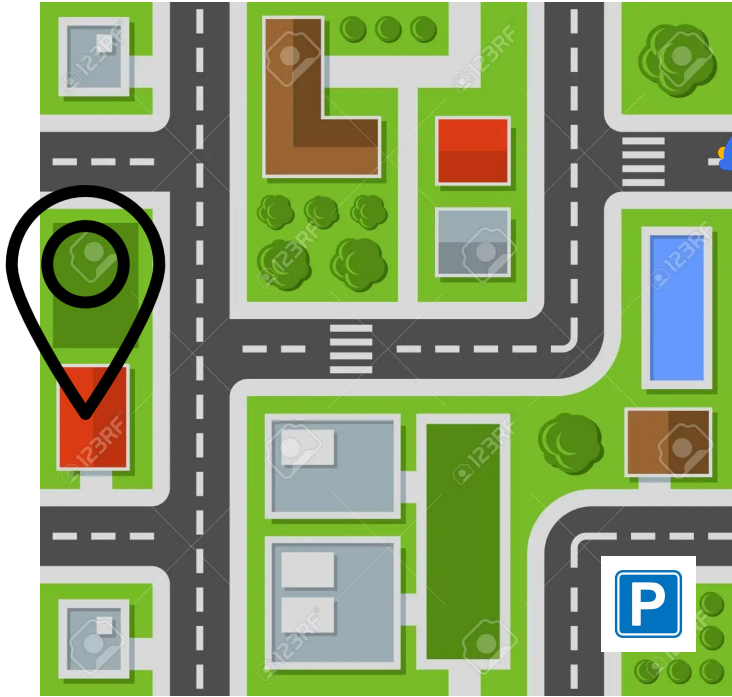
## ECE Areas Covered:

Software Systems:  
database, web app

Hardware Systems: spot  
sensor module

Signals: processing data  
from sensors

# Drivers Need to Save Time, Hassle-Free



<16 feet

- Location accuracy within 30 ft
- Sensor wake up every 5 minutes
- Accessible, safe, and easy-to-use web app

# Becoming Friends with Kerby Should be Easy

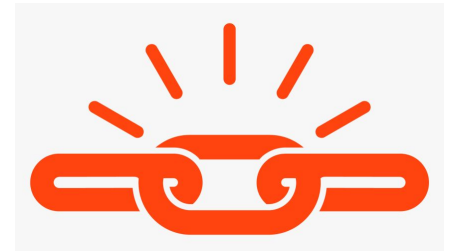
The time and chaos saved by using Kerby should outweigh the cost of operation.



Easy Installation



Modular Design



Longevity

# Kerby Might Face Technical Challenges: Hardware

## Reliability

- Distinguishing between vehicles and other objects
- Integrity of received sensor data

## Durability

- Module arrangement to prevent damage, loss, weather interference

## Performance

- Constant power source to meet 24/7 user requirement
- Consistent network connectivity to publish sensor data

# Kerby Might Face Technical Challenges: Software

## Availability

- Reliable message-passing protocols between IoT platform and centralized server
- Fault tolerance mechanism e.g memory overflow

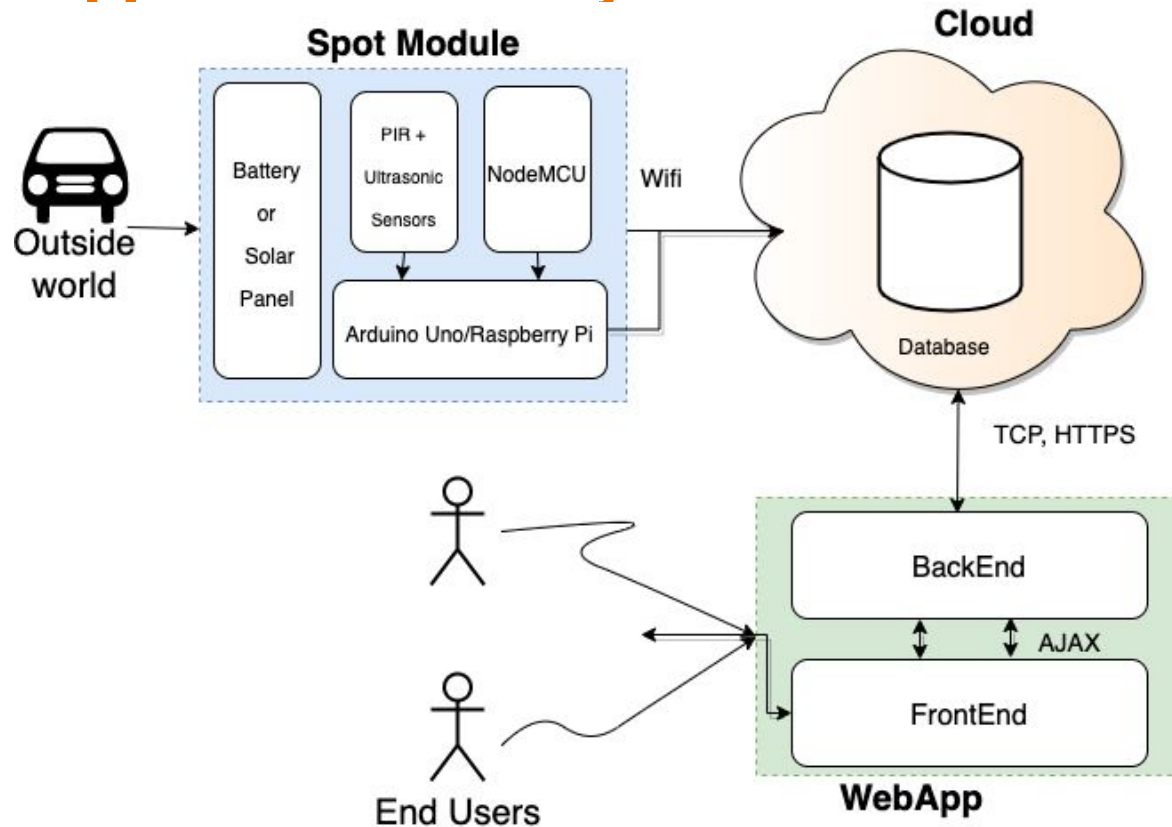
## Latency

- Bandwidth vs processing speed tradeoffs

## Consistency

- Whether transmitted data identifies accurate representation of parking area.

# Solution Approach for Kerby





# Testing - MVP

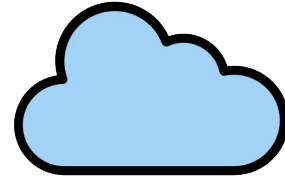
1 User



2 Spot Modules



Web software



- Using 2 ends of Margaret Morrison parallel parking
- Using different requests for different destinations on campus

# Testing, Verification and Metrics

Requirement	Measurement	Goal
Find closest street parking to destination	Using google maps api to find distance between given spot and destination	< 0.5 mi
Accurate parking location	Distance between provided location and actual parking spot in real world	< 30ft
Accurate representation of real world	Confusion matrix from testing with large number of users and requests	< 20% False Positive and Negative
Easy-to-use web app	User Testing and recording ratings from 1(bad) to 5(great)	> 80% surveyed gave 3.5 stars or above
Easy to install	User Testing and recording time	< 5 min
Relatively cheap for scalability	Compare to cost of regular parking meters	< \$50 per spot module

# Tasks and Division of Labor

Mrinmayee	Kanvi	Neville
Sensor research and testing  Software algorithm to parse data from spot module	Hardware setup  Frontend graphics and web app design	Communication between module and central database  Central hub maintenance software
Field testing  Backend web app software to process requests		

