

Who Let the Dog Out?

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<https://sites.google.com/view/wltdo>



PROJECT / DESCRIPTION

The purpose of this project is to create an Internet of Things (IoT) pet door. This project has four aspects:

- "Who Let the Dog Out" Android app
- Particle Photon microcontroller
- Firebase cloud server
- Mechanical pet door

APP / FUNCTIONS

With the Who Let the Dog Out app, owners will have:

- Pet door control capabilities (locking, unlocking, sleep timer)
- Pet activity data visualization
- Push notifications in response to stored database information

DOOR / FUNCTIONS

The Who Let the Dog Out pet door:

- Senses pet with bluetooth and proximity sensor
- Sends pet activity to Firebase database through microcontroller
- Has a sliding door mechanism with sensors for safe operation

APP / USE CASES

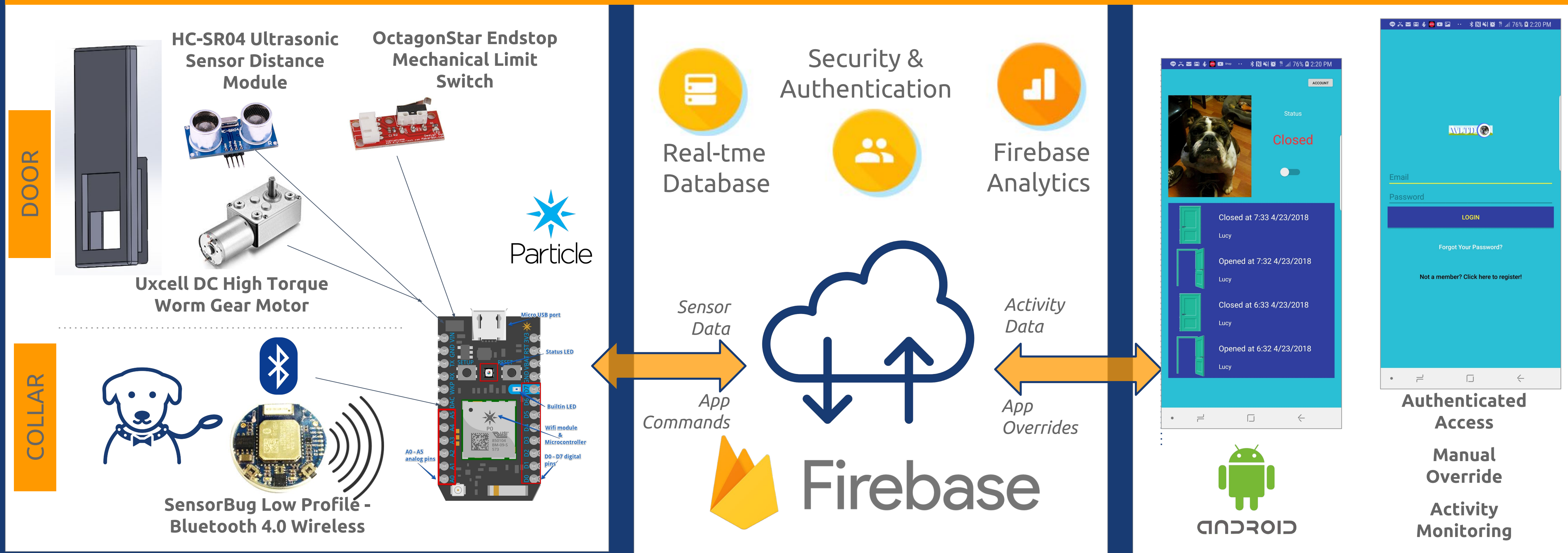
Possible implementation in:

- Animal shelters
- Grooming centers
- Kennels
- Adoption clinics
- Pet stores
- Residential

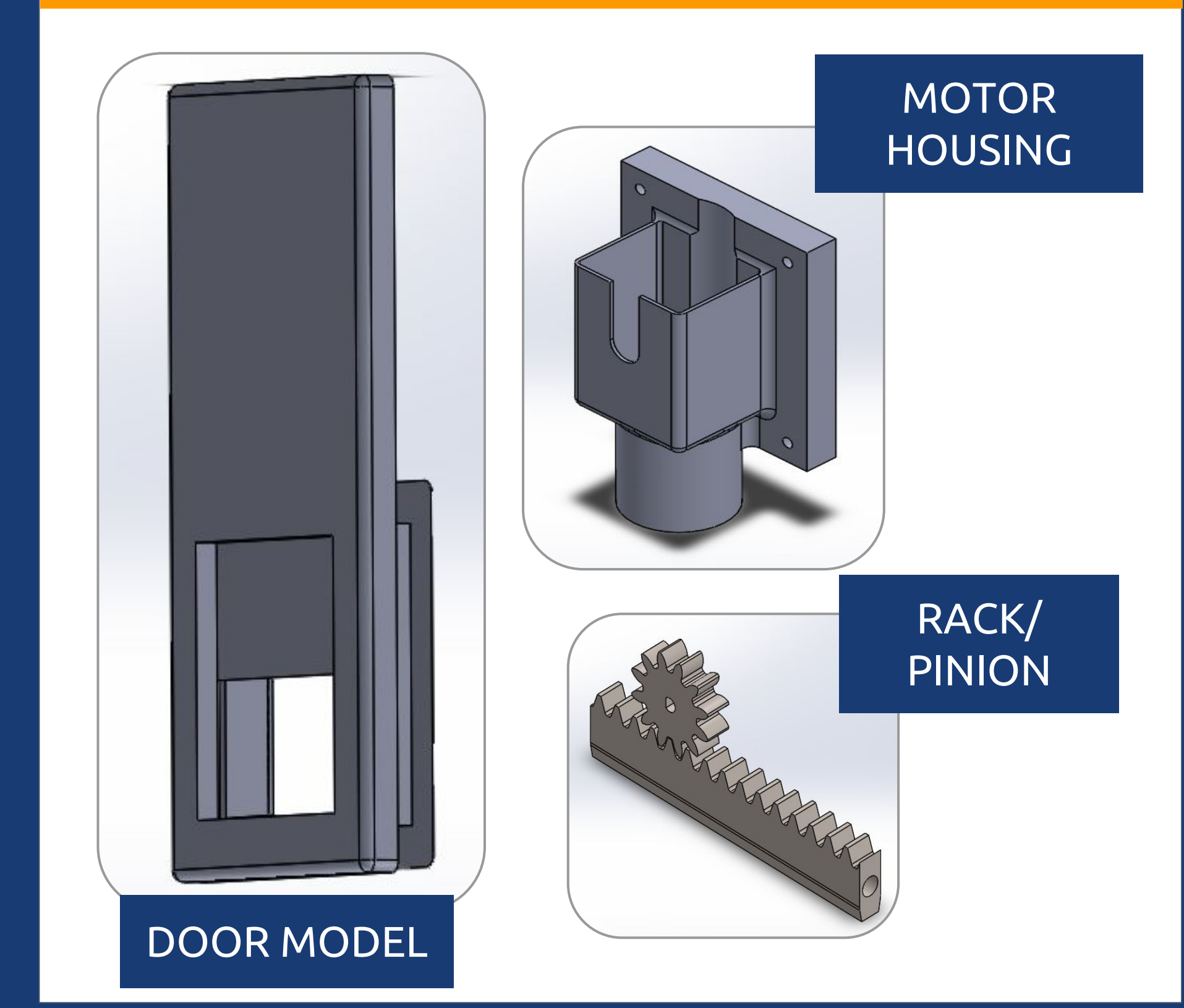
DESIGN / CONSTRAINTS

- Economic
 - Production cost ≤ \$200
 - Low power design
- Health & Safety
 - Manual overrides to ensure animal safety
 - Home security

SYSTEM ARCHITECTURE / EMBEDDED, CLOUD & MOBILE PLATFORMS



DESIGN / MANUFACTURED MODEL



TEAM / MEMBERS, DR. IZADI & DR. NARASIMHAN



FUNCTIONALITY / INTERNET OF THINGS

Add sensing & networking capability to everyday objects, to enable intelligent use

- Bluetooth-based dog collar to provide proximity-driven identification of pet
- Microcontroller & sensor-integrated door to enable control & activity tracking
- Mobile app for remote monitoring & manual override of door controls

FUTURE WORK / ADD MACHINE LEARNING

- Google AIY Vision Kit
- Camera + Computer vision to verify pet identity when pet approaches door
- Complements tag ID
- Reuse for other needs (e.g., package delivery)

