Internet of Things Pet Feeder Project

Masters degree in Computer Engineering





Summary

- 1. Introduction
- 2. Related works
- 3. System Architecture
- 4. Interoperability



Introduction

- Globally, 1 in 3 pets is homeless (Mars Project)
- The 2016 cat population in Portugal was estimated at 991,000 (D'Avila)
- ✓ This project seeks to establish secure feeding boxes for the area's stray cats, ensuring they have consistent access to nutritious food in a safe environment, therefore enhancing their well-being.



991,000 cat population



Avenida do Biribau, Covilhã Near UBI



Feeding Box Project

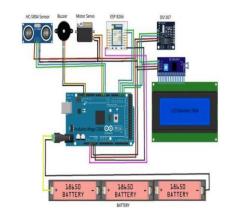


Related works

Component	1st Solution	2nd Solution	3rd Solution	4th Solution	5th Solution
Function	Remote Monitoring and Feeding	_		reeding and	Remote Monitoring Feeding, drinking and litter box
Microcontroller	Arduino Uno	Arduino Uno	Arduino Uno	Arduino Uno	Arduino Uno
Communication	ESP8266 WiFi	ESP8266 WiFi	ESP8266 WiFi	ESP8266-01	ESP8266 WiFi
Sensors	Real Time Clock, Load Cell, Servo Motor, TCS3200-color Sens., Camera	Load Cell,	Load Cell, Servo Motor,	Load Cell, Servo Motor	Infrared Sensor(PIR) Load Cell, Servo Motor
Interface	Telegram App	Blynk App	Blynk App	Blynk App	Blynk App











First Second Third Fourth Fifth



Related works

	Smart Cities	Smart Homes
Focus	Enhance urban life on a large scale; address infrastructure, energy, transportation, healthcare, and services	Focus on individual residences; enhance convenience, security, and energy efficiency
	Manage and protect vast amounts of data, integrate diverse systems, ensure security and scale solutions	Ensure user privacy, integrate devices user-friendly, and maintain reliable connectivity
Impact	Affect entire communities and urban systems	Just individual living spaces





Smart Cities Smart Homes



System Architecture

Itens:

- Solar Cells
- NodeMcu Sim Card
- Rechargeable Battery
- Temperature and Humidity
- Sensor
- Mini servo motor
- Ultrasonic Sensor
- Camera

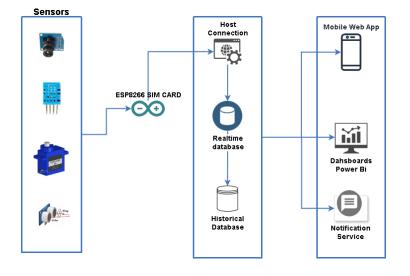
Cam Rechargeable Battery Ultrasonic Sensor Temperature Sensor NodeMcu SIM Card Dispenser Box Mini Servo

Server:

Net Core 8.0, Json, SQL Azure, Azure App Service, Python

App:

React Native Node



Database:

SQL Azure Postgres

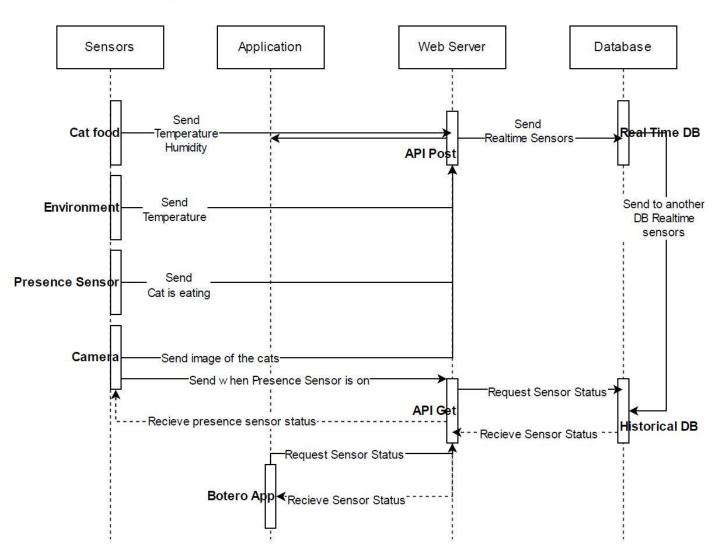
sensor_table sensor_name value timestamp

camera_table timestamp image

Box components Architecture Design Database



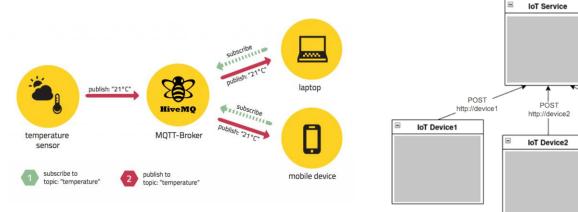
System Architecture





Interoperability

The adoption of open standards is one way to ensure this interoperability, along with the use of application programming interfaces (APIs).



http://device3

IoT Device3

Thanks a million

https://github.com/juscelior

https://github.com/renejerez

