Building an IoT Security Camera With Raspberry Pi

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What is the task/problem you are trying to solve?

Motivation:

Students living in rental houses often face the problem of stolen packages. This is because packages are often left unattended on the doorstep, making them easy targets for thieves.

Current State of Smart Camera Control Systems

- Issue 1: Not affordable
- Issue 2: Installation complexity

Project Objective

Develop an open-source smart camera IOT system

Components

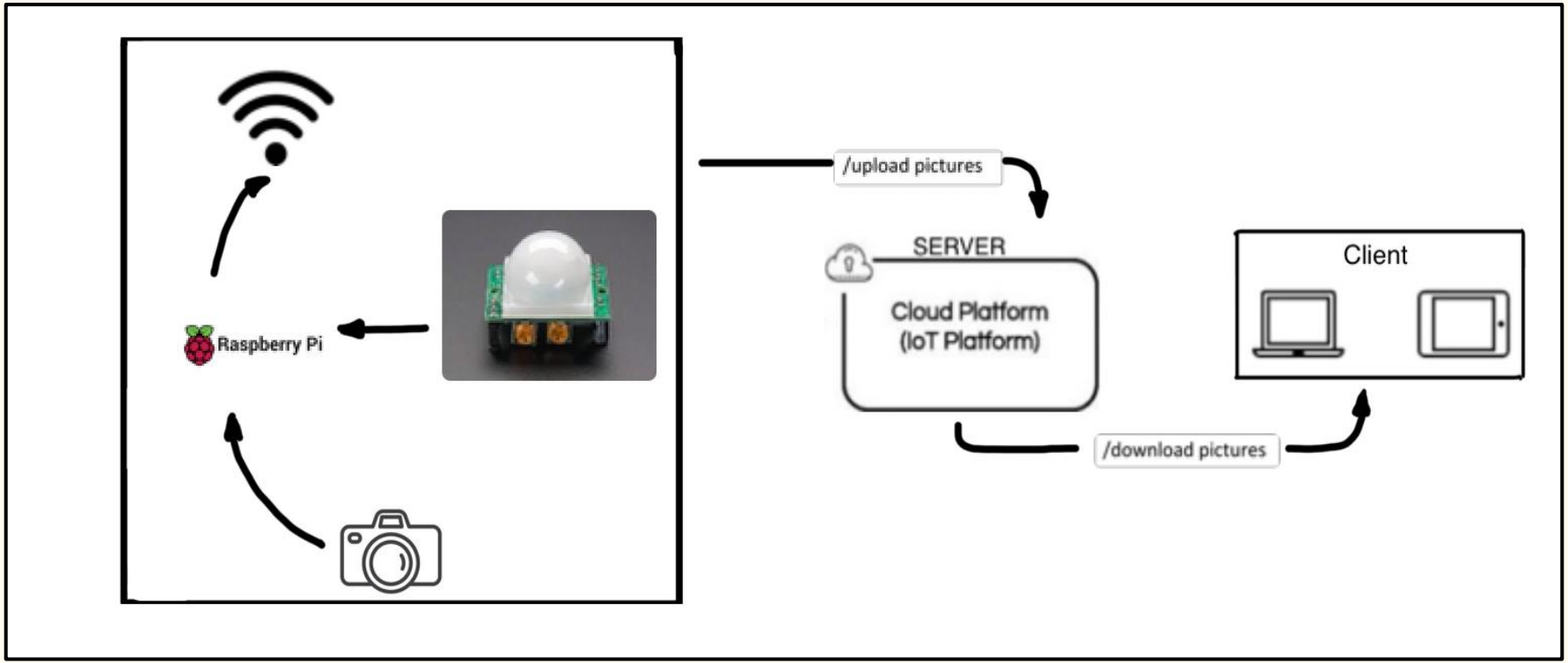
Hardware:

- Raspberry Pi
- PIR Sensor(Motion detection sensor)
- Camera module

Software

- Raspberry Pi OS
- AWS EC2 for server hosting
- VS code

How do they interact with each other?



What are the tradeoffs you have made in your design?

Performance: The Raspberry Pi 4 is a powerful device, but it is not as powerful as a dedicated server. This means that the system may not be able to handle a large number of cameras.

Security: The system uses a number of security measures, but it is not completely secure. It is important to take steps to protect the system from unauthorized access.

Accuracy: The motion detection algorithm may not be able classify unusual activity in all cases. This could lead to false positives or false negatives.

Usability: The system may be difficult to use for users who are not familiar with technology.

What is the tech stack you are using?

- Configuration of Raspberry Pi
- Adding the camera - Picamera 2
- Assembly of PIR Motion Sensor
- Detection of Movement
- Writing the client code and testing locally
- Creating a web server to store our images

What are the challenges you expect to face?

Hardware Integration:

- Ensuring seamless integration of Raspberry Pi 4, PIR motion sensor, and camera module

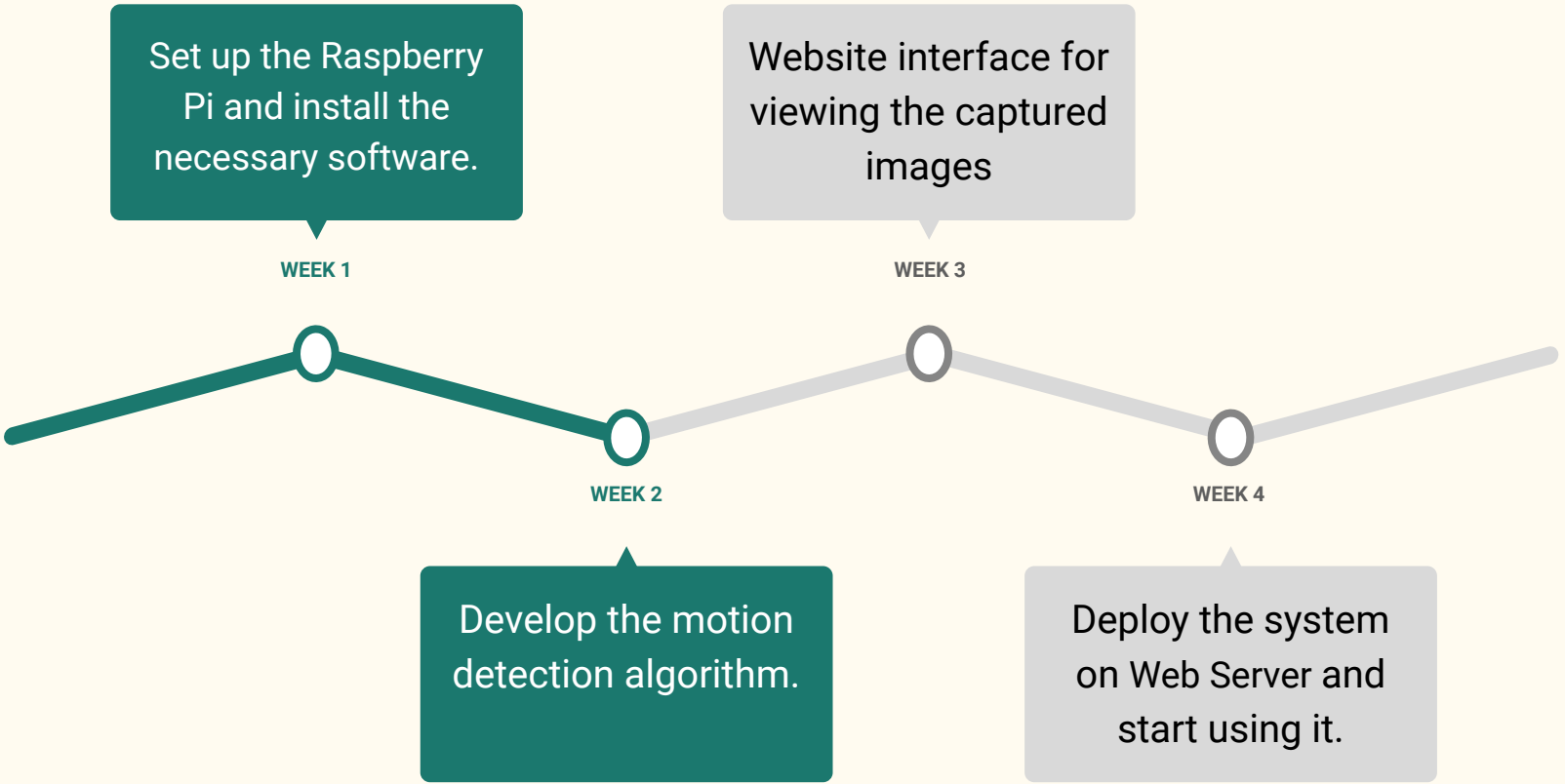
AWS Integration and Hosting:

- Configuring AWS for secure image storage and access can be complex

Security Concerns:

- Safeguarding against unauthorized access, data breaches, and security vulnerabilities

Task timeline.



THANK YOU