**Smart Home Monitoring**

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Design and implement a comprehensive Smart Home Monitoring and Security System utilizing Raspberry Pi, Sense HAT, camera, simulated sensors, an MQTT broker, a database, and WhatsApp integration. This system aims to provide real-time monitoring of environmental conditions and security while allowing users to request updates and receive pictures through WhatsApp.

**Tools, Technologies, and Equipment**

* Raspberry Pi 3B+:
  + Central control unit for data collection, processing, and communication.
* Sense HAT:
  + Measure temperature, humidity, pressure, and orientation for environmental monitoring.
* Camera:
  + Provide visual monitoring and security through motion detection.
* Simulated Sensors:
  + Simulate additional sensors (motion, light, gas) to enhance the monitoring capabilities.
* MQTT Broker:
  + Enable efficient communication between devices for real-time updates.
  + Publish data to the MQTT broker for real-time updates.
* Database:
  + Store historical data for analysis and visualization on a web-based dashboard.
* WhatsApp / Email Integration:
  + Set up email and WhatsApp alerts for security breaches and abnormal conditions.
  + Implement integration with the WhatsApp Business API for sending updates and pictures.
  + Implement the ability to respond to specific WhatsApp commands (e.g., "update" to request sensor updates, "picture" to receive camera snapshots).
* Python Scripting:
  + Develop Python scripts to read data from sensors, camera, and simulated sensors.
* User Interface (Depends on time):
  + Create a web-based dashboard for users to monitor real-time and historical data.
  + Display camera snapshots, sensor readings, and energy consumption patterns.

**Project Repository**

[Github Repo](https://github.com/FloberPoP/Smart-Home-Monitoring.git)