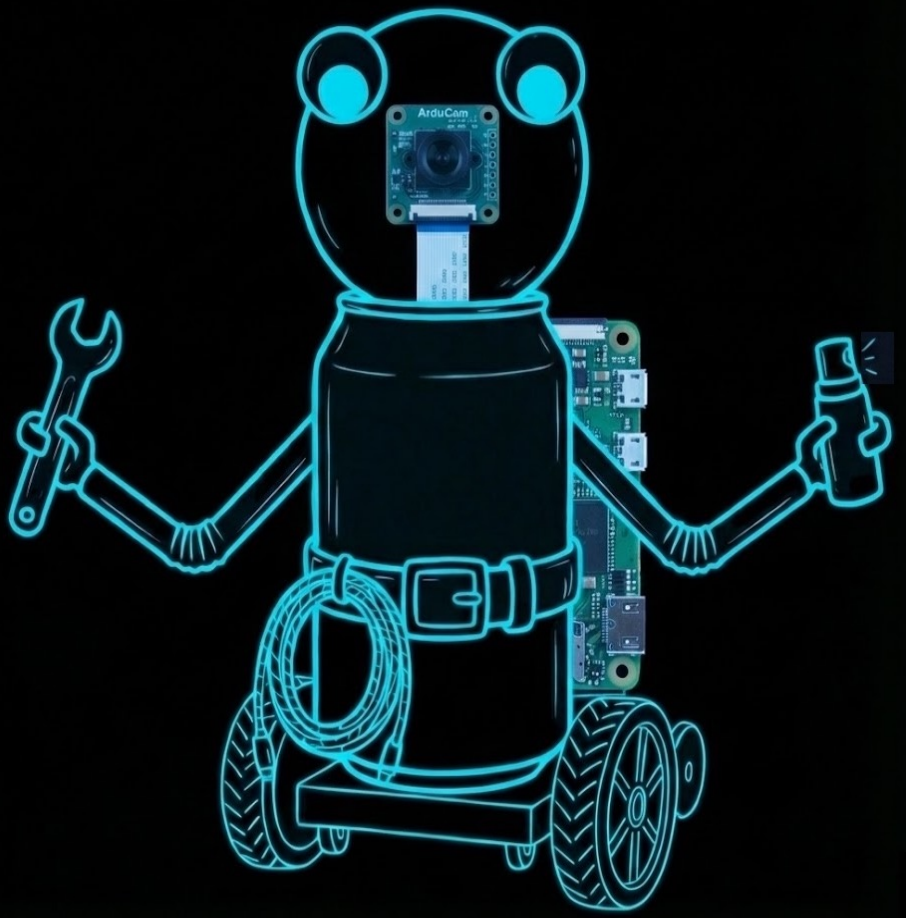
Who Moved My Mug?

(Teaching a Raspberry Pi; To Spy ; With Spring-AI)

Introducing "Gizmo Guard"

Sasi Peri

01/16/2026



CodeMash

Who am I?

FourthQuest
Quest beyond the basic needs

- Company Website: www.fourthquest.com
- Youtube: @4thquest
- LinkiedIn : sasiperi
- X : @sasiperi350

Why this?

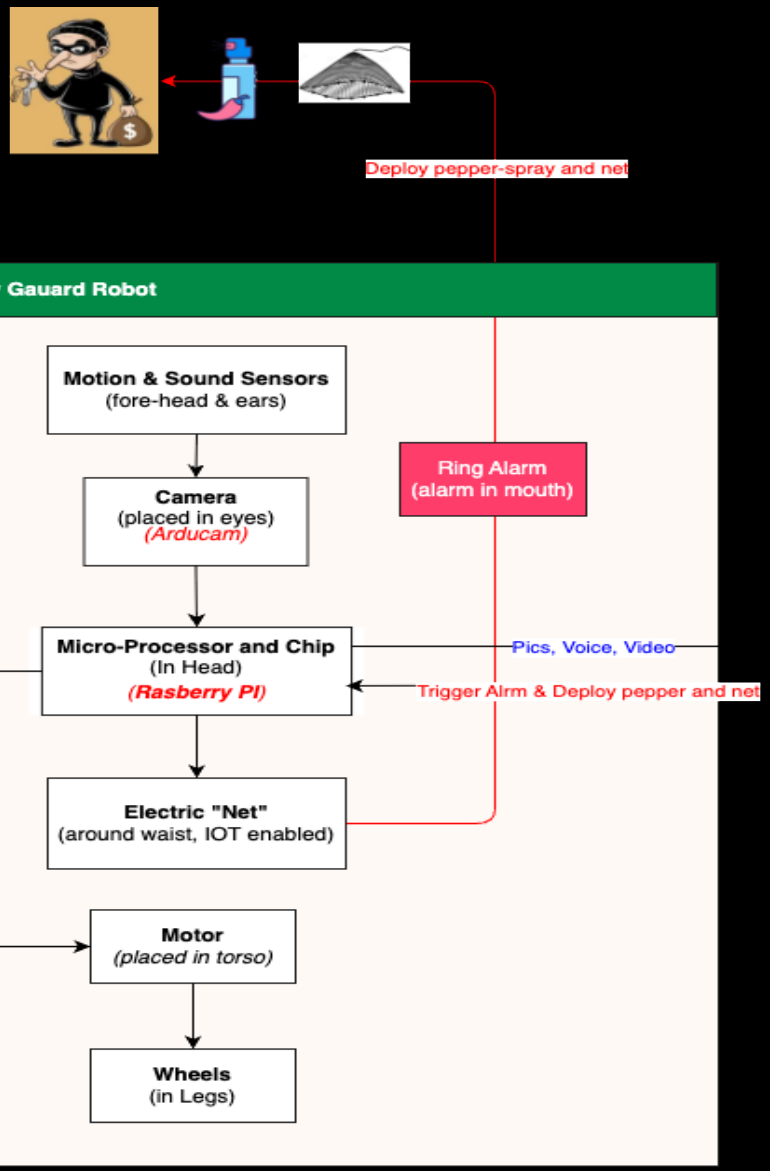
Why I avoided AI for CFP?

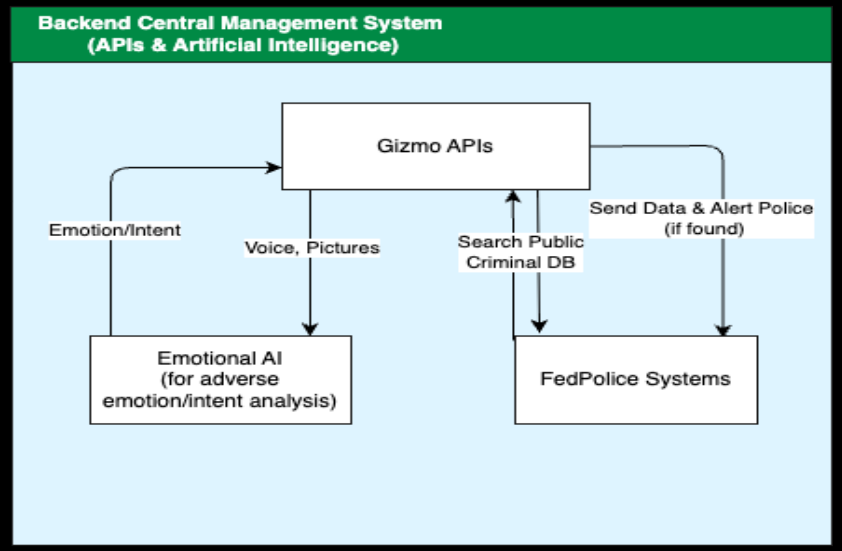
AI buzzing everywhere ...

Then this happened – DDID

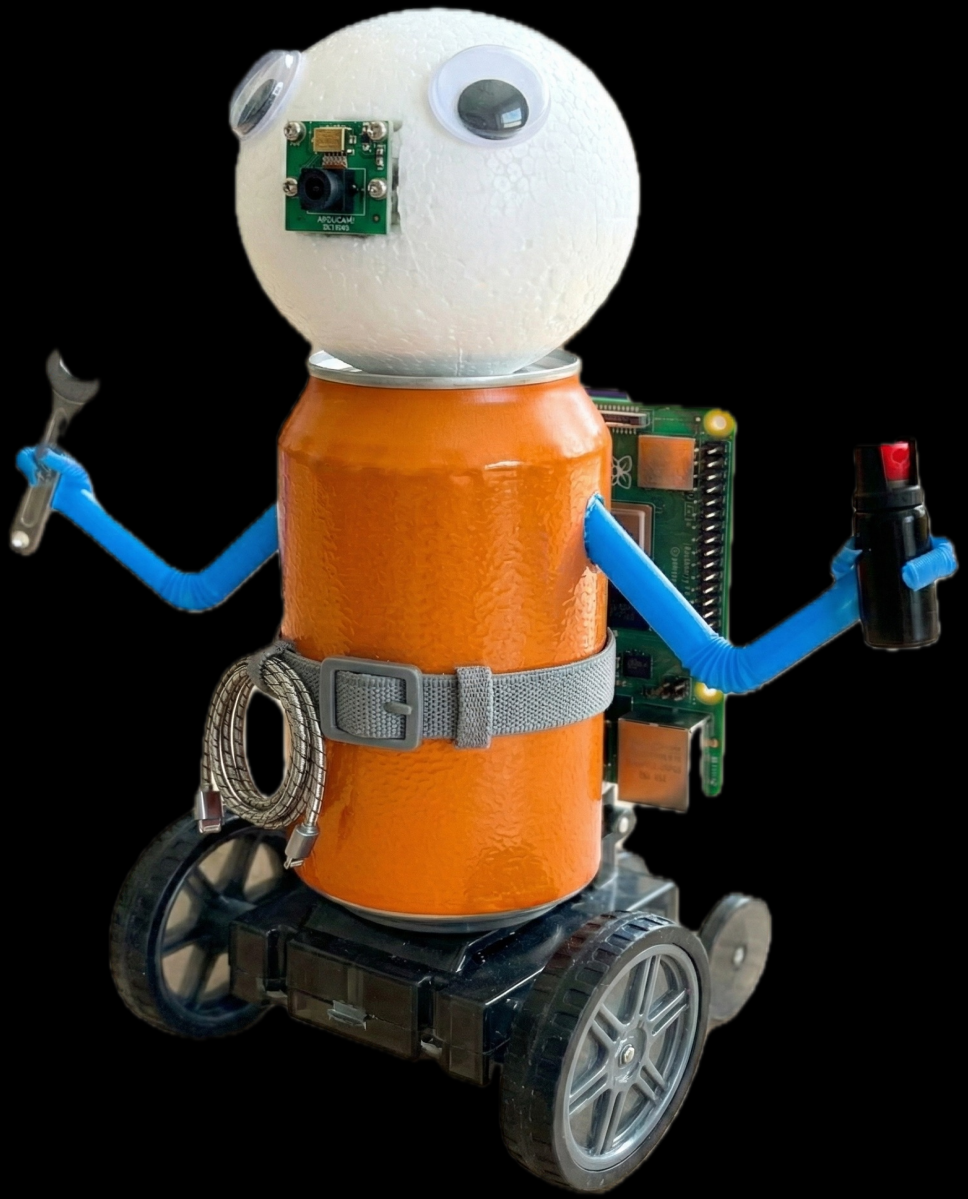
Daughter Driven Idea and Design

Original Design





Paper To Prototype



To CFP Submission

Decision to turn,
The fun,
Into a run,
For the CFP submission !

Goals

- Kid-Friendly & Fun-Filled
- Zero budget *(…almost)*
- Local + Private
- And lot of learning *(byproduct)*

What is in for you?

- Motion detection with no sensors
- Local running, free, openAI compatible model.
- Spring AI & Multimodality
- Private, low-budget, “Edge AI”
- Motivation to build fun personal AI tools *(with kids)*

Session Flow

- Pieces of the puzzle
- How this comes together?
- Demo
- Code
- Future possibilities
- My learning and takeaway
- *Q & A*

Pieces of the puzzle: Hardware

Raspberry Pi Zero W (Wireless) (2017 model)

Sold by: Evotock, LLC

$19.99

Buy it again | View your item

Arducam for Raspberry Pi Zero Camera Module, 5MP OV5647 1080P Webcam on Raspbian (Cables in 2 Kinds)

Sold by: UCTRONICS

$9.49

Buy it again | View your item

Amazon Basics Micro SDXC Memory Card with Full Size Adapter, A2, U3, Read Speed up to 100 MB/s, 128 GB, Black

Sold by: Amazon.com

Replacement window closed on November 10, 2025

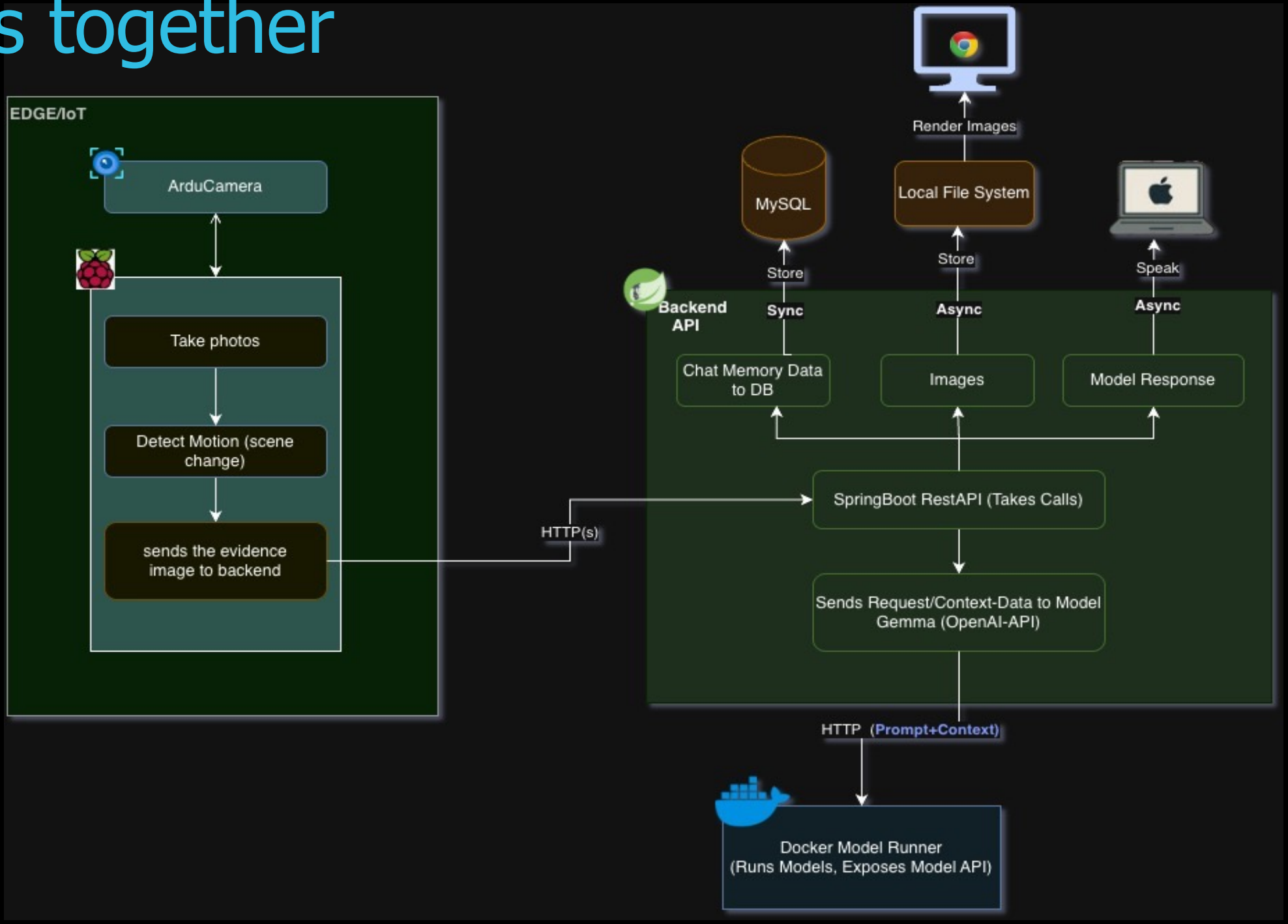
$11.99

Buy it again | View your item

Pieces of the puzzle: Software and Misc

- On the Pi – Python
- Docker Model Runner (DMR)
- Backend: Java, SpringBoot, Spring-AI
- Multimodal(s) used.
  - gemma3n
  - smolvllm

Pieces together



DEMO

System Prompt

You are Gizmo, a Coffee Mug Guardian, an extremely protective AI watching my mug. Analyze every input image given to you, based on visual pixel evidence, don't assume, something not in the image. Use uncertainty phrases if unsure.

Response rules:

- Identify, if any one from known references (BOB or SASI PERI, LISA or ALICE) are in the input image or unknown new stranger is in the image.
- Report "THIEF ALERT", ONLY WHEN wooden SACRED_MUG with engraved text, not visible in the image.
- Report "mug is in safe position" ONLY IF you see wooden SACRED_MUG, with engraved text, described in the known references.
    - ELSE IF wooden SACRED_MUG with engraved text, not visible in the image, report "mug is not visible"
- State the name if you see (BOB or SASI PERI, LISA or ALICE) from the know references visible in the image else state stranger.
- Check how they look, mood, gesture, end with description of what or who you see 1-2 sentence, you can be funny.

Code

Python on Pi

Docker & DMR

- docker model list
- docker model install <model-name>
- docker model rm <model-name>
- docker model pull <model-name>
- docker model run <model-name>

Backend REST

What Next?

Future possibilities

- Servo-based robot (GPIO Header)
- Pi4J and SpringBoot Pi4J Starter *(Motor, LED, Buzzer controls)*
- Intruder alerts *(text/mail/mms)*
- Video Streaming
- Person recognition with RAG
- DB to store pictures, and generate dashboards, reports.
- Model Improvements
- And more …

My learning & Takeaway

- How did I find, finalize the models?
- How did I optimize the script on Pi?
- My take on the models and effectiveness.
- Challenges
  - Networking
  - Testing

Thank you

- Jim Shingler (Sr. Director)
- Thomas Halter (Sr. Principal)
- Brian Holdren (Sr. Cloud Architect)
- Doug Hoke, Silicon Valley Bank *(All Things Security)*
- Steve Jackson (Principal)

Resources and Links

- Github: github.com/sasiperi
- Pi4J and spring-boot-starter-pi4j
- Spring-AI
- Docker Model Runner

Q & A

Feedback

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