

EVE, END TO END

A local-first household agent — three GPUs on a private mesh, and four named paths to the cloud.

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WHAT IT IS

A voice assistant that runs my household — devices, calendar, errands, comfort — off **one store holding all of it at once**: mail back to 2016, messages, photographs, scanned documents, the house. Photographs are not held as photographs — **faces and places back-filled across a decade**, then cross-referenced against mail and messages, so a past event answers from whichever source happens to hold it. Context is held **locally, to unlimited size, at no cost**.

Indexing, millisecond search and the nightly pass that crushes a day to a record and a week to one page all run here. Cloud frontier calls are small and bounded, reasoning only over the slice local hands them: pick a tool in 0.6 s, read one document, phrase a reply around facts local code has already supplied. **Numbers are copied, never composed**. Since 9 October Claude and Gemini draft every reply side by side under identical rules; one speaks, and my own questions decide which. Structured JSON, **four named paths, every crossing counted**.

THE HARDWARE

- 12 GB RTX 4080 mobile — the whole of Eve: Qwen3-8B + a persona QLoRA, Kokoro-82M TTS, Silero VAD, every store, 100+ HTTP routes on the mesh.
- 24 GB RTX 4090 — the nightly pass: Qwen3.6-27B under vLLM over the whole day, agent digests, mail ingest, photo captioning.
- 24 GB RTX 3090 — trained the voice LoRA in 43 minutes. Speech in is faster-whisper on CPU, so the microphone has no idle timeout.

CONTEXTUAL DEPTH SAMPLE 1 E-MAIL → 3 SHAPED OUTPUTS

Rowan's birthday — Saturday the 3rd

Sample e-mail · names invented · dana@example.org · 8 Sep · read by a cloud model

An ordinary parent e-mail: four lines of running prose, no structure, no attachment. Nothing in it says “here are three tasks.”

- ✓ **Rowan's birthday party** CALENDAR
Sat 3 Oct 14:00 · Elm Street park shelter
| “We’re doing Rowan’s party Saturday Oct 3rd, 2pm at the Elm Street park shelter”
- ✓ **RSVP to Dana** ‘HOME’ TASK
due Fri 26 Sep
| “let me know by the 26th so we can count heads”
— a deadline nine days before the event, on its own clock
- ✓ **Buy a present for Rowan** ‘HOME’ TASK
due Thu 1 Oct
| “We’re doing Rowan’s party Saturday Oct 3rd, 2pm at the Elm Street park shelter”
— nothing in the message mentions a gift; dated two days ahead so it is not a Saturday-morning errand

1 proposal discarded — it quoted a line the message does not contain.
Inference is allowed; invented evidence is not.

ADD 3 TO EVE

THREE OBLIGATIONS OUT OF ONE INVITATION — THE EVENT, THE DEADLINE BEFORE IT, AND THE ERRAND NOBODY WROTE DOWN

THE LEDGER

657,253 RECORDS IN CARE	86.4 GB HELD AT HOME
2,339 SHOWN TO A CLOUD MODEL	5.6 MB EGRESS · 4 PATHS
6.5 M CLOUD TOKENS	\$4.52 GEMINI BILL

“Cloud figures cover the last seven days: 5.6 MB left the house against 86.4 GB kept here, every record counted at the door.”

01 IoT table stakes example

Home automation is not new — every router ships a scheduler. The chore is the interface: exact times, entered by hand, for rules that never hold still. Tonight is different, and the reason only exists tonight.

Not a better editor — a dispatcher that already knows the household. “Cut the internet” means eight devices: the kids’, not mine, and not its own — carried out over SSH to the router’s own CLI, not an integration.

ROUTER | INTERNET
ISP STATUS ONLINE
KIDS' DEVICES ONLINE
KIDS' CUTOFF 8 PM
KIDS' RESTORE 11:30 AM TOMORROW
ROUTER FILTER
RBX · ROBLOX

CRUISE
LAUNDRY OFF
LAST DONE 07:37
MODE · WASH + DRY COMBO
Laundry fan starts when a load runs, until an hour after ends.

CRUISE
FRIDGE
42° FREEZER 0°
WATER FILTER 5 MO
ALERT ON 3° DEVIATION

ROUTER, WASHER, FRIDGE

02 Air, temperature and humidity — the loop ends on measured CO2, not a clock.

PLANNING

Indoor CO2 and dew point, outdoor dew point, the hourly forecast, a comfort band — and direct control of six physical surfaces: a thermostat zone, two fans, the furnace blower, a bath fan, and a worm-gear window actuator. **No vendor sells that combination of inputs and actuators**, so the control loop had to be built rather than configured.

No model in the path

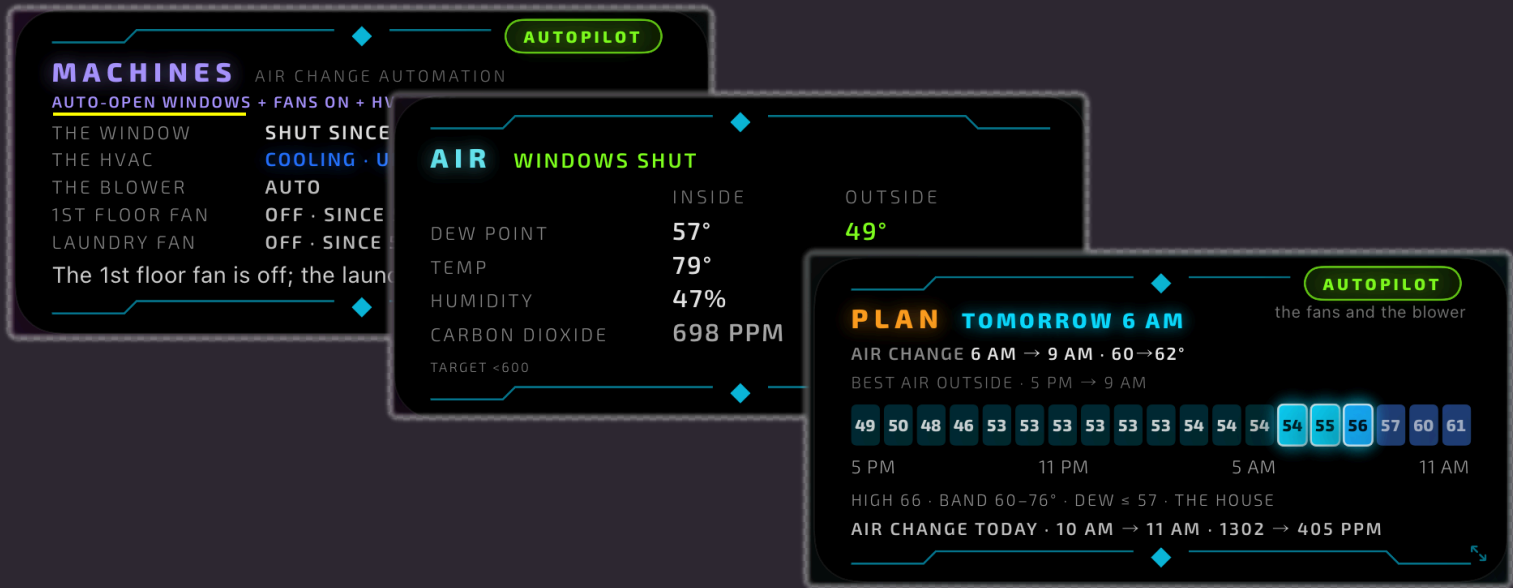
The language model never actuates. Every rule in the control path is ordinary code with a fixed priority order — deterministic control and probabilistic assistant, kept apart.

The setpoint is computed

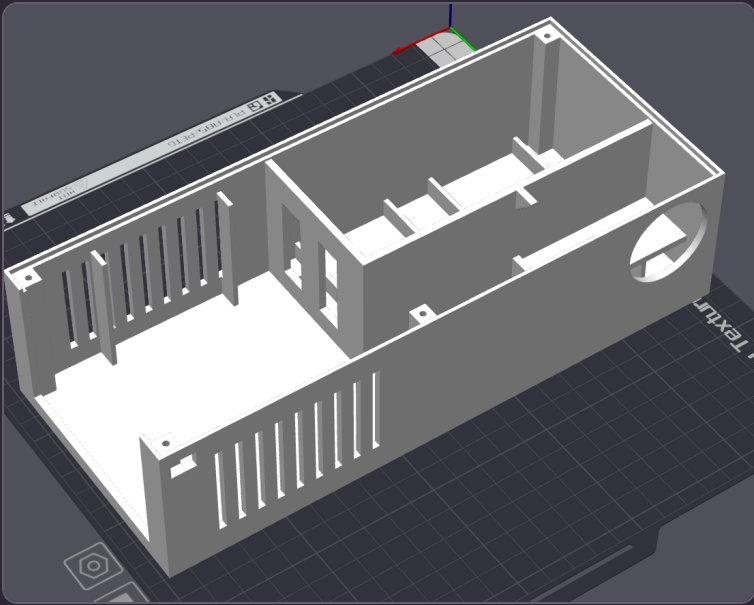
Below 80° a thermostat cannot feel humidity, so the controller adds half a felt degree for every degree of dew point above the comfort line. A plain hold at 79 fails on a cool, muggy day.

It ends on an outcome

The morning air change stops when CO2 actually falls, or when comfort leaves the band — never when a clock says so. In September, **1302 → 405 ppm in an hour**. Air changes per hour come from a log-linear fit of the decay.



BEST AIR OUTSIDE RUNS 5 PM TO 9 AM; THE PLAN TAKES 6 TO 9



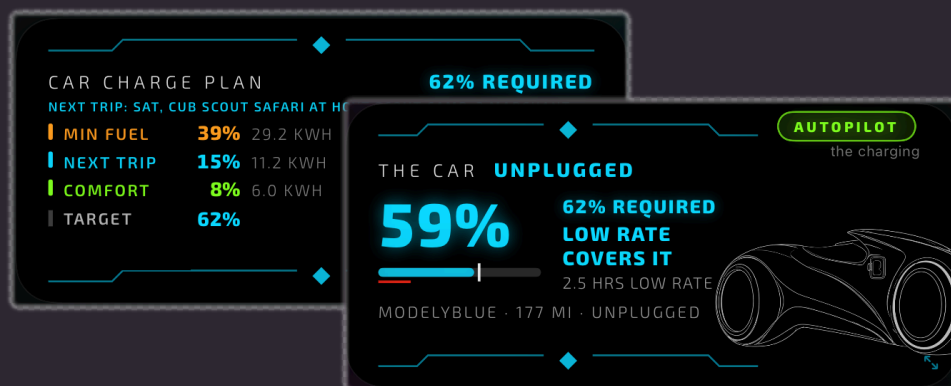
THE WINDOW OPENER — BUILT WITH MY AGENT. THE MODEL CAN ASK FOR IT; CODE ON RAILS TURNS THE GEAR.

The agent does not stop at recommending a plan — it can call on every control surface needed to carry one out, including hardware I built for it. The call lands in ordinary code, which applies the fixed rules and turns the worm gear itself. Pictured: the enclosure modelled, then the finished actuator fitted under a window it physically opens and closes. **A person grants that authority and can take it back.**

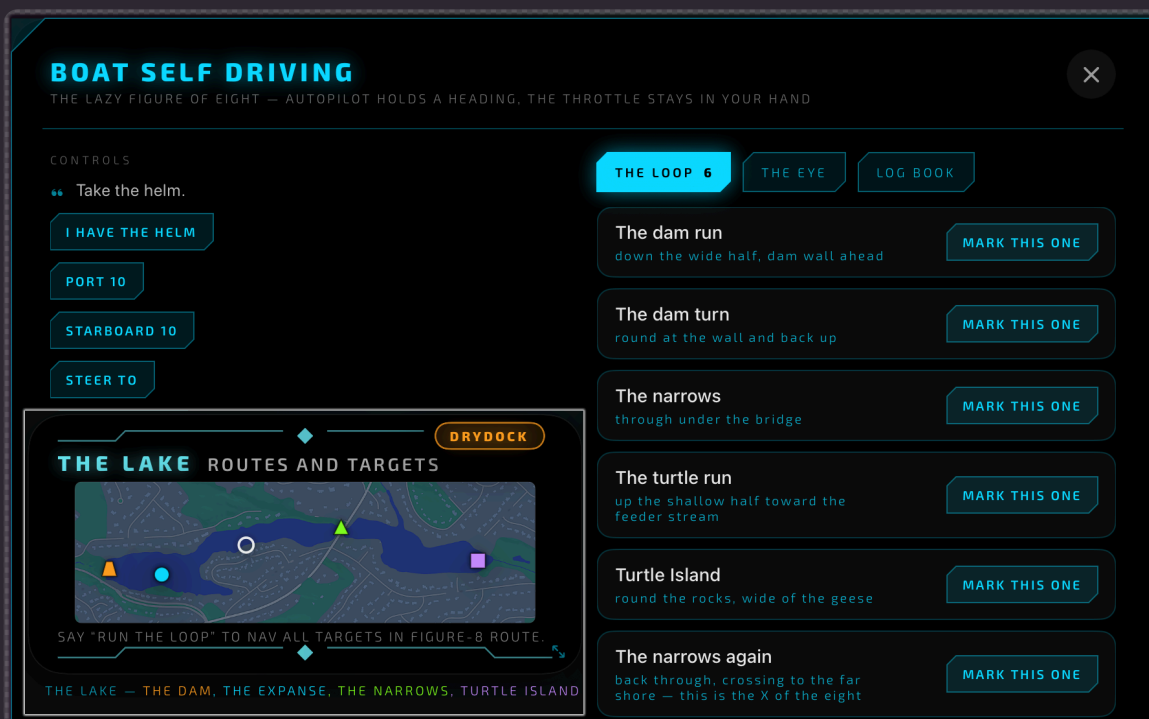
03 The same foundation, outdoors: a car charging plan that moves with the family calendar, and a boat being built to steer itself.

ACTUATION

The next trip is a calendar entry. Its distance becomes kilowatt-hours, and those join a reserve and a comfort margin to make one number — **62% required against 59% in the battery**. Then the second question: can the cheaper rate charging hours close the gap? Tonight they can, in 2.5 hours, so **nothing is bought at the expensive rate**. When they cannot, the card says how much high-rate charging time was added to tonight's charge schedule.



NOTHING ABOVE IS A MOCK-UP — IT RUNS THE HOUSE TODAY. BELOW IS PHASE III: COMPONENTS MODELLED, ASSEMBLY NEXT.



BOAT SELF DRIVING — THE SIX LEGS, AND WHAT IT WILL NOT TOUCH

Five demonstrations, one foundation. A birthday invitation, a window that opens itself and a boat being built to run a figure-eight share more than it seems: everything lives in one store, a dispatcher picks the tool, the tool runs deterministically, and local code reports the measured result.

Once the first one worked, each one after it was just a new tool. The foundation never had to change.

36 AGENT SLOTS · 8 NIGHTLY JOBS
100+ ROUTES · 43 VOICE TOOLS
~44,100 LINES OF PYTHON

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