From Ancient Artifacts to Baby Analytics

👋 Who Am I?

Recovering Archaeologist 🏺 :

Former life: BSc in Archaeology (stats/quantitative focus) + published papers

Secret weapon: Ran regression models on pottery shards. (Yes, really.)

Current Life 📊 :

Senior Data Analyst @ Payroc | BSc Data Science | Masters in Advanced Computing.

Obsessed with spreadsheets, Python, and automating literally everything (Home assistant enthusiast).

payroc

6ᵗʰ November 2024, a new role: FATHER

Not sure if a promotion. My new manager is the most junior member of the staff.
New talk topics with the neigbours, supermarket aisled unlocked.
New skills and knowledge
But, above all:

NEW WORRIES

Has he eaten enough?
When was the last dirty nappy?
Is he growing fine?
Is he hungry again? When should we feed him?

Data, data, and more data

During the hospital time, paper and pen.
My best friend: Baby Buddy:

- Open source

- Self hoster

- Integration with home assistant

  - Ikea Zig... ...ta input

BUT

- Lack of statistics or reporting

- Lack of personalisation

- Lack of trust in my raspberry pi (backup)

If I wanted to go deeper, I needed to export the data and analyse it using Python!

Jupyter notebook: Quick prototype

API

Retrieval JSON data

Pandas

Compilation in dfs
Creation of a diary,
with details each day
of life.
Date changes at 6:30

visualisation

Graphs, graphs and
more graphs

Forecasting

Tried to guess new
feeding time (It didn't
work)

Computer on

Access of a computer
needed for running the
notebook.

A streamlit webapp

GUI

A simple GUI for easy interaction

Self-hosteD

Using another raspberry pi
Back-ups automaticos

Modularity

Different tabs, different records
Reuse of code and design

Navigation

Select a page:

- ⦿ Data retrieval
- ○ Diary
- ○ Feedings
- ○ Pumpings

Baby Buddy Data

Data retrieval and cleaning

[Get data]

Day	Starting datetime	Ending datetime	daily feeding amount
1	2024-11-06 18:28:00	2024-11-07 18:28:00	0
2	2024-11-07 18:28:00	2024-11-08 18:28:00	0
3	2024-11-08 18:28:00	2024-11-09 18:28:00	334
4	2024-11-09 18:28:00	2024-11-10 18:28:00	528
5	2024-11-10 18:28:00	2024-11-11 18:28:00	605
6	2024-11-11 18:28:00	2024-11-12 18:28:00	515
7	2024-11-12 18:28:00	2024-11-13 18:28:00	475
8	2024-11-13 18:28:00	2024-11-14 18:28:00	560
9	2024-11-14 18:28:00	2024-11-15 18:28:00	655
10	2024-11-15 18:28:00	2024-11-16 18:28:00	760

Total feeding: 240.0 ml until 2025-02-02T18:28:00.000000000

Total Feeding Amount

Average Feeding Amount

Future work

New statistics

Weight, tummy time

Automatic data retrival

UX improvement
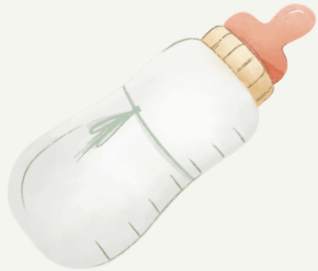
Hardware companion

ESP32 + LED matrix

Gamification

Direct API connection

Simple summary

THANKS!