Universität Augsburg
Fakultät für Angewandte Informatik

Send NUTEZ

Food Tracking done right.

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Winter Semester 2021-2022

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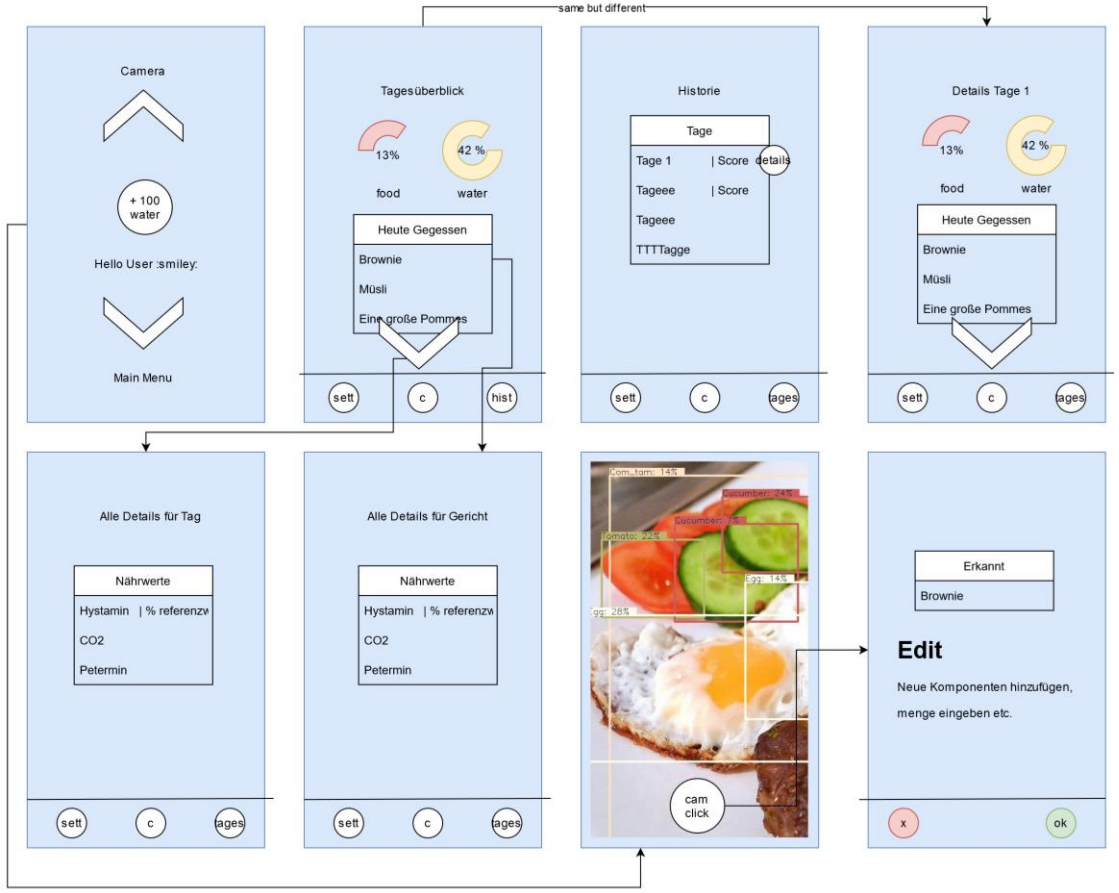
Introduction

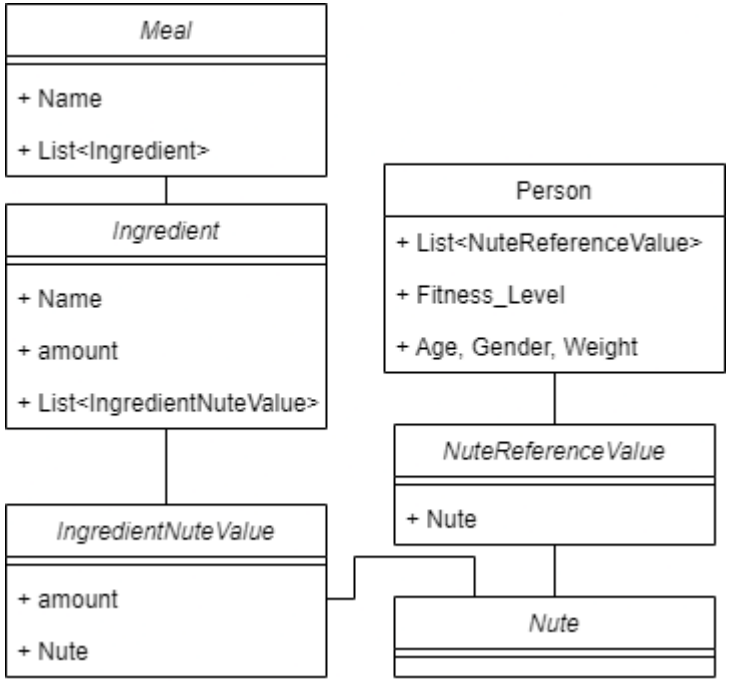
Food Tracking done right.

- Nutrition diary
- Automated food detection
- Personal and meal nutrition scores
- Detailed data screens

Implementation

Wireframe and Architecture





Implementation

Food Detection

- Based on YOLOv5 with Pre-trained weights for Food
- Model converted and built for the NCNN framework
- Call the model via JNI
- Send ImageProxy Stream/Images
- Receive predictions and Box-coordinates
- Original implementation: https://github.com/lannguyen0910/food-recognition
- https://www.researchgate.net/publication/335833242_FoodTracker_A_Real-time_Food_Detection_Mobile_Application_byDeep_Convolutional_Neural_Networks

Data

Database and Nutrition API

- Daily nutrition reference values: https://multimedia.efsa.europa.eu/drvs/index.htm
- Nutrition facts: https://fdc.nal.usda.gov/
- Local database for meals

Tabelle: NUTE_REFERENCE_VALUE

In allen Spalten filtern

	_id	NUTE_ID	target_population	age_from	age_to	gender	fitness_value	reference_value	upper_limit
	Filte...	Filtern	Filtern	Filtern	Filtern	Filtern	Filtern	Filtern	Filtern
137	137	1	Adults	480	588	Female	1.79999995231628	9.69999980926514	0.0
138	138	1	Adults	480	588	Female	2.0	10.6999998092651	0.0
139	139	1	Adults	600	708	Female	1.39999997615814	7.5	0.0
140	140	1	Adults	600	708	Female	1.60000002384186	8.5	0.0
141	141	1	Adults	600	708	Female	1.79999995231628	9.60000038146973	0.0
142	142	1	Adults	600	708	Female	2.0	10.6999998092651	0.0
143	143	1	Adults	720	828	Female	1.39999997615814	6.80000019073486	0.0
144	144	1	Adults	720	828	Female	1.60000002384186	7.80000019073486	0.0
145	145	1	Adults	720	828	Female	1.79999995231628	8.80000019073486	0.0
146	146	1	Adults	720	828	Female	2.0	9.69999980926514	0.0
147	147	1	Adults	840	948	Female	1.39999997615814	6.80000019073486	0.0
148	148	1	Adults	840	948	Female	1.60000002384186	7.69999980926514	0.0
149	149	1	Adults	840	948	Female	1.79999995231628	8.69999980926514	0.0
150	150	1	Adults	840	948	Female	2.0	9.60000038146973	0.0

Live Demo

Demo time….

Challenges and Conclusion

…and how we overcame them

- Challenges
  - Find and use existing model -> Training time would be too long
  - Find suitable models -> limited performance
  - UI -> try to keep it simple
  - Database ORM -> hibernate not found
- Extensions
  - Recipe API and suggestions based on your nutrition intake
  - Better model
  - Even more detailed statistics
  - (cannibal mode if camera detects a human…)

Send NUTEZ.

Food tracking done right.

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