Call: HORIZON-HLTH-2022-STAYHLTH-02

Topic: HORIZON-HLTH-2022-STAYHLTH-02-01

Funding Scheme: HORIZON Research and Innovation Actions (RIA)

miGut-Health

Personalised blueprint of intestinal health

Deliverable No. 6.2

Extension of AI-assisted MyFoodRepo app for diet tracking

Grant Agreement no.: 101095470

Project Title: **miGut-Health**: Personalised blueprint of intestinal health

Contractual Submission Date: 31/12/2023

Actual Submission Date: 21/12/2023

Responsible partner: P11 - EPFL

Funded by the European Union

Project funded by

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Education, Research and Innovation SERI

Grant agreement no.	101095470
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Type[1]	OTHER
Dissemination level[2]	Public
Work package number	6
Author(s)	Marcel Salathé (EPFL)
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Keywords	MyFoodRepo; diet tracking app

This work has received funding from the Swiss State Secretariat for Education, Research and Innovation (SERI) under contract number 22.00445 and the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union nor SERI. Neither the European Union nor SERI can be held responsible for them.

[1] **Type**: Use one of the following codes (in consistence with the Description of the Action):
- R: Document, report (excluding the periodic and final reports)
- DEM: Demonstrator, pilot, prototype, plan designs
- DEC: Websites, patents filing, press & media actions, videos, etc.

[2] **Dissemination level**: Use one of the following codes (in consistence with the Description of the Action)
- PU: Public, fully open, e.g. web
- SEN: Sensitive, limited under conditions of the Grant Agreement

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1 Introduction

The MyFoodRepo app is an AI-assisted diet tracking app used to accurately assess the diet of study participants. Originally designed for studies in Switzerland, the app was designed with international expansion in mind. In the context of miGut-Health, two countries have expressed interest to use MyFoodRepo: Germany and the Netherlands. Thus, to use MyFoodRepo in the countries, we needed to adjust the app and to these countries. This is now done, and both apps are ready for use in Germany and the Netherlands.

2 Description of Activities

2.1 Integration of country-specific food list

Most nations maintain their own food lists, serving as reference databases that detail the nutritional content of various food items. For an application like MyFoodRepo, which is designed to monitor the diets of study participants across different countries, compatibility with these country-specific lists is essential.

Concurrently, the application's core feature, image-based food recognition, identifies food items based on their visual attributes. For instance, a universally recognizable item like a banana, once learned by the AI algorithm, can be identified regardless of the geographical location of the image capture.

However, MyFoodRepo faces the challenge of correlating visual identifications with items on these specific food lists. The intricacy lies in the detailed nature of these lists, which often feature numerous subcategories of visually similar items, such as different types of tea, for example.

To navigate this complexity, MyFoodRepo utilizes a dual system of visual sets and country-specific food lists. A visual set represents the category identified through image recognition. Once a set is determined, it is then mapped to one or several corresponding items from the food lists of various countries. This integration process, though time-consuming, is a one-time requirement for each new country added to MyFoodRepo.

As an example of how the app works, two images are attached below. The first screenshot shows images of lamb existing in the app. Now, there are many food classes that look like lamb (Figure 2). When the app recognizes something as “lamb”, and it comes from Switzerland, these food items will be offered to the annotator. In Germany, however, the list is different, as well as in the Netherlands, and so on. But the recognition always happens on the level of the set.

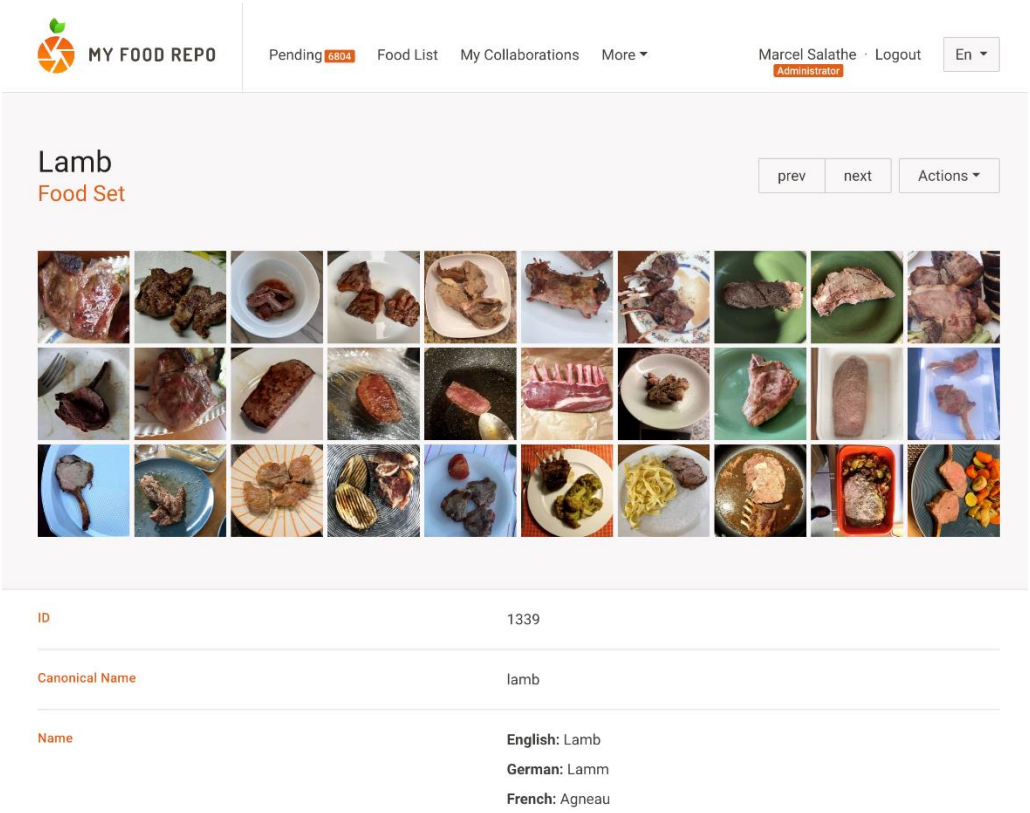


Figure 1. Example – images of lamb collected with the app

Associated foods

ID	Fc foodclass	Globodiet	Sfcdb	Name	Country	Annotatable	Segmentable	Composed	Parents	Children	Standard dish portion
1770	07 01 04	707	13303	Lamb, chop	CH	✓	✓	✗	1764		110 g
1766	07 01 04	703	13273	Lamb, filet	CH	✓	✓	✗	1764		110 g
1768	07 01 04	705	13304	Lamb, leg	CH	✓	✓	✗	1764		110 g
1769	07 01 04	706	13302	Lamb, shoulder	CH	✓	✓	✗	1764		110 g
1765	07 01 04	702	13302	Lamb	CH	✓	✓	✗	1764	742	110 g
1767	07 01 04	704	13305	Lamb, for fondue	CH	✓	✓	✗	1764		110 g

Figure 2. Items from the Swiss food list thar are mapped to the ´lamb´ set

Currently, we have successfully integrated and mapped the distinct food lists of Germany and the Netherlands (NEVO), in collaboration with local experts. This expansion also includes the launch of a Dutch language version of the app, now accessible on both iOS and Android platforms, necessitating significant development efforts.

We have also started first test in the Netherlands with respect to the MyFoodRepo app, and helped the German group with the IRB documents (as we already had other cohorts in Germany use the app).

2.2 App fully available for German and Dutch studies

The app is now fully available and usable in Germany and the Netherlands. The apps can be used in the local language, and the available food lists that the app and the backend use are the countries' standardized food lists.

3 Conclusion

The goal of this deliverable was to integrate language and local food lists of countries that expressed interest in using MyFoodRepo in their local trials and cohorts. This has been achieved.

4 Next steps

During the testing process, the Dutch team have identified a number of improvements in the app that they consider as important for the Dutch participants. We are currently working on integrating these, in particular a clearer onboarding process.