FICHE PROJET – Human–AI Interaction (Pré-enregistrement v0)

Équipe :

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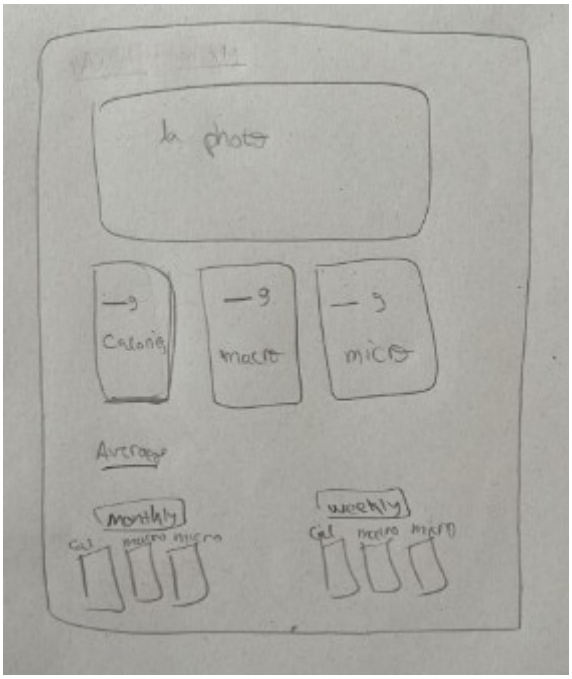
1) Problème & Public *(5 lignes max)*

- **Contexte d'usage :**
  Food : calories - nutrients tracking.
- **Tâche(s) cible(s) :**
  Tracks the micro/macro nutrients for every dish.
- **Utilisateur·rices visé·es** (profil précis) :
  Everyone seeking to have a balanced diet (including pregnant women, athletes, …).

2) Promesse d'assistance *(3 lignes max)*

- **Ce que l'IA fait :**
  Calculates the food micro/macro nutrients (image processing) of each dish the user is having (and the medications the user normally has too) and gives monthly/weekly status of the deficiencies.

  Also integrates the bloodwork lab results and adjusts the recommendations.
- **Ce que l'IA ne fait pas :**
  Does not give the recommended dish recepies.
- **Exemple d'écran clé** (ce que voit/fait l'utilisateur·rice) :



3) Contrat d'interaction H-IA

- **Expliquer : quand ?** (avant/pendant/après décision ; seuils)

  When the user takes a picture of the dish.

- **Incertitude : comment l'afficher ? Que faire ?**

  Badge "Low, Medium, High"

- **Abstention / fallback : quand ?** (règles simples)

  If there's high incertitude, we ask the user to retry and upload a new picture without trying to give an estimation. (exemple: if the image is blurry).

- **Override : où et comment ?** (UI + trace)

  A message pops up saying: This is just an estimation, feel free to correct me!

  There would be three buttons:

  - *OK*: The user accepts the estimation.
  - *ALMOST THERE*: There are some visible gaps but the user tolerates the estimation as it is (not perfect).
  - *NO*: The whole dish is misidentified; the user takes another picture and if the second one is misidentified again, the user overrides and fills out the ingredient form from scratch.

4) Métrique primaire d'équipe *(en choisir <u>une</u>)*

[ ] Team Uplift = Perf(H+IA) – max{Perf(H), Perf(IA)}

[x] Reliance = P(suivre IA | IA correcte) – P(suivre IA | IA incorrecte)

Pourquoi ce choix ? (3 lignes max) :

Because in this case, we mostly rely on AI to recognize the elements (rather than the human to learn how to do it). The user itself does not want to do the calculations, therefore it wouldn't fit into the "Team Uplift".

Quelles variables va-t-on mesurer ?

P(suivre IA | IA correcte) = OK

P(suivre IA | IA incorrecte) = ALMOST THERE

Fenêtre d'observation : à quel(s) moment(s) ?

After 10 pictures we evaluate how many times the AI was mistaken.

5) Traces minimales

Nom du champ	**Source** **(UI | WoZ | Script | Post-traitement)**
timestamp	**Script**
session_id	**Script : generated number at the beginning of each session**
trial_id	**Script : automatic counter for the number of tries**
condition **(H_only|H_plus_IA)**	**UI : by taking the picture**

ai_output (shown|none)	**Wizard : estimation of the calories and nutrients**
ai_uncertainty (low|mid|high|na)	**Wizard : the error of the model**
explanation_variant (off|factors|constrastive|na)	**Wizard**
human_action (accept|override|ignore)	**UI : click on the feedback buttons (OK, ALMOST THERE, NO)**
user_confidence [0, 1]	**UI : 1 because the user is 100 % confident about his correction of the AI**
correct (Y|N)	**UI : when the human overrides the list of elements in the dish** **Wizard : the AI itself proceeds**
decision_time_ms	**Script : from taking the picture to user accepting the answer**
notes	**Wizard : statistics**

3 événements concrets à capter (verbes + action) **:**

1. The user fills out some preliminary information about the medication they're taking, if they're pregnant or they are using the app for a certain reason (athlete, etc.). The user has to take a picture of every dish he takes for a more precise estimate. At the instance the picture is taken the photo will be analyzed by the model and the results will be shown to the user.

2. After the analysis of the estimate of nutrients is provided to the user, the user can choose between 3 actions : they can accept the estimate (OK button), modify some entries (ALMOST THERE) and they can completely reject the estimate and ask for a new one (NO). We save « human_action » and « decision_time_ms ».

3. The user can check the statistics on the average micro/macro nutrients consumed based on the entries (they are updated after each picture taken through « ai_output » with its uncertainty level « ai_uncertainty »).

6) Mini-protocole

- **Conditions** (ce qui varie selon les groupes) :

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- **Taille visée & raison** (combien de personnes) :

  Each user has an unlimited amounts of picture analysis.

- **Critère de succès initial** :

  Picture quality (lightning, framing, etc.).

- **Règles d'arrêts** (on arrête la collecte quand ?) :

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7) Garde-fous *(max 2, testables)*

- **GF1** (déclencheur mesurable, action déclenchée) :

  If the process of taking pictures gets into a loop, we stop after 2 times of failing in giving a correct estimation and we ask the user to fill the form manually.

- **GF2** (déclencheur mesurable, action déclenchée) :

If there’s high uncertainty, we ask the user to retry and upload a new picture without trying to give an estimation (example: if the image is blurry).

8) Conformité

- **Qu’allez-vous collecter ? Est-ce que cela vous semble acceptable ?**

  Session_id + statistics of the user but anonymously.

- **Que direz-vous aux utilisateurs ?**

  Ask for consent, be explicit about how the WoZ collects information, possibility of deleting the account.

- **Autres précautions envisagées :**

  Deleting the picture once the estimate is done but keeping the results for the statistics for improving app.

9) Croquis de l’écran clé en 1 vignette *(facultatif)*