

INTRODUCTION

- Many people record their meals for dietary management.
- However**, existing methods record only one person's meal.
- Record the meals of multiple people at once using an **omnidirectional camera**.

CalorieCam360

Change your meal recording

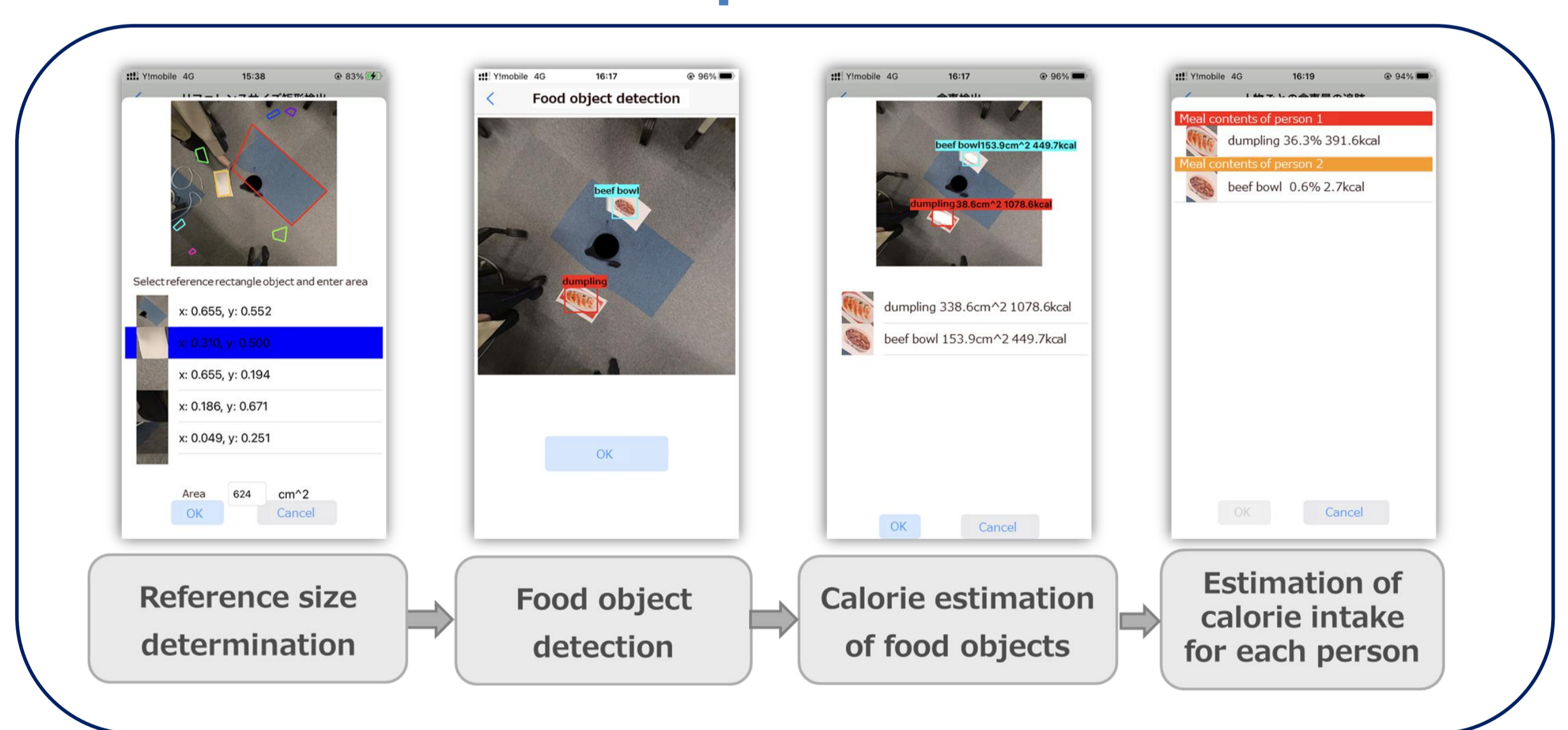
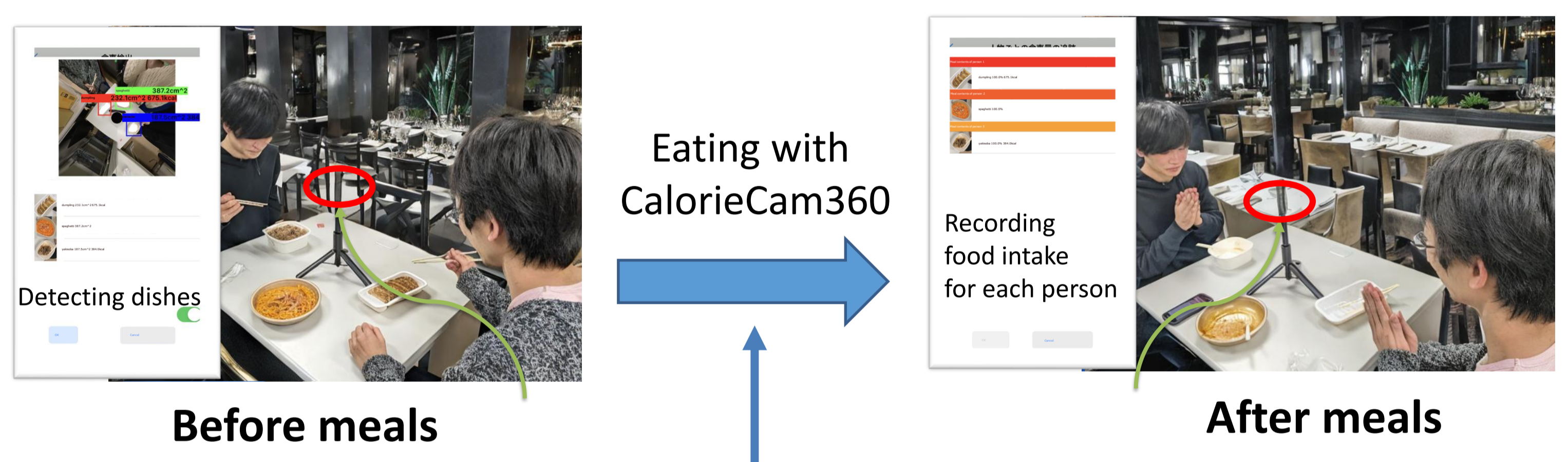


OUR PREVIOUS WORKS

- DeepCalorieCam [1]** regression-based estimation
 - Grilled fish 221kcal
 - Salad 35kcal
 - Rice 168kcal
 - Miso soup 60kcal
 - Tofu 42kcal
- GrillCam [2]** realtime eating recognition
 - Movie and detection result
 - face region
 - mouth region
 - Food count
 - meat: 1
 - pumpkin: 0
 - rice: 0
 - bell pepper: 0
 - carrot: 0
 - total: 57kcal
 - have eaten meat
 - detected chopsticks
 - Kind of eaten food
 - Accumulation calorie
- CalorieCam [3]** 2D size-based estimation
 - Area
 - Calorie
 - Area
 - Calorie
 - Area
 - Calorie
 - Area
 - Calorie

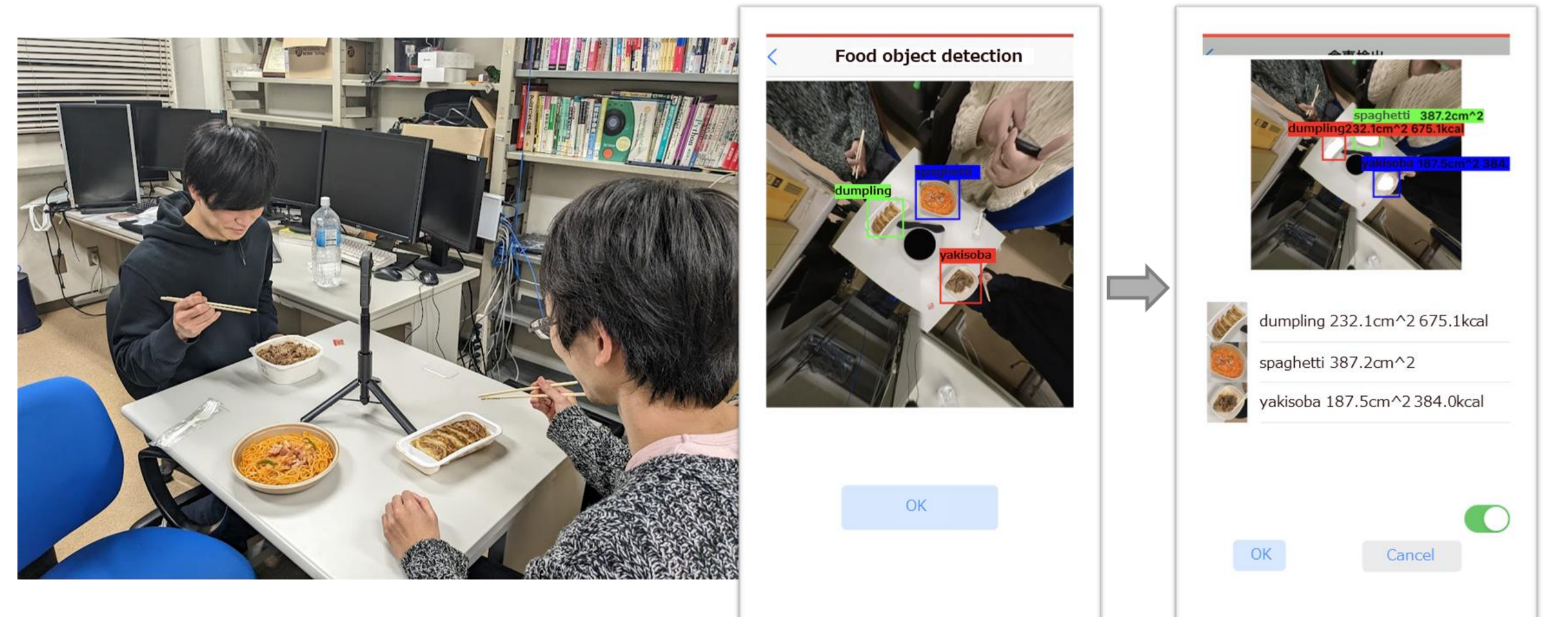
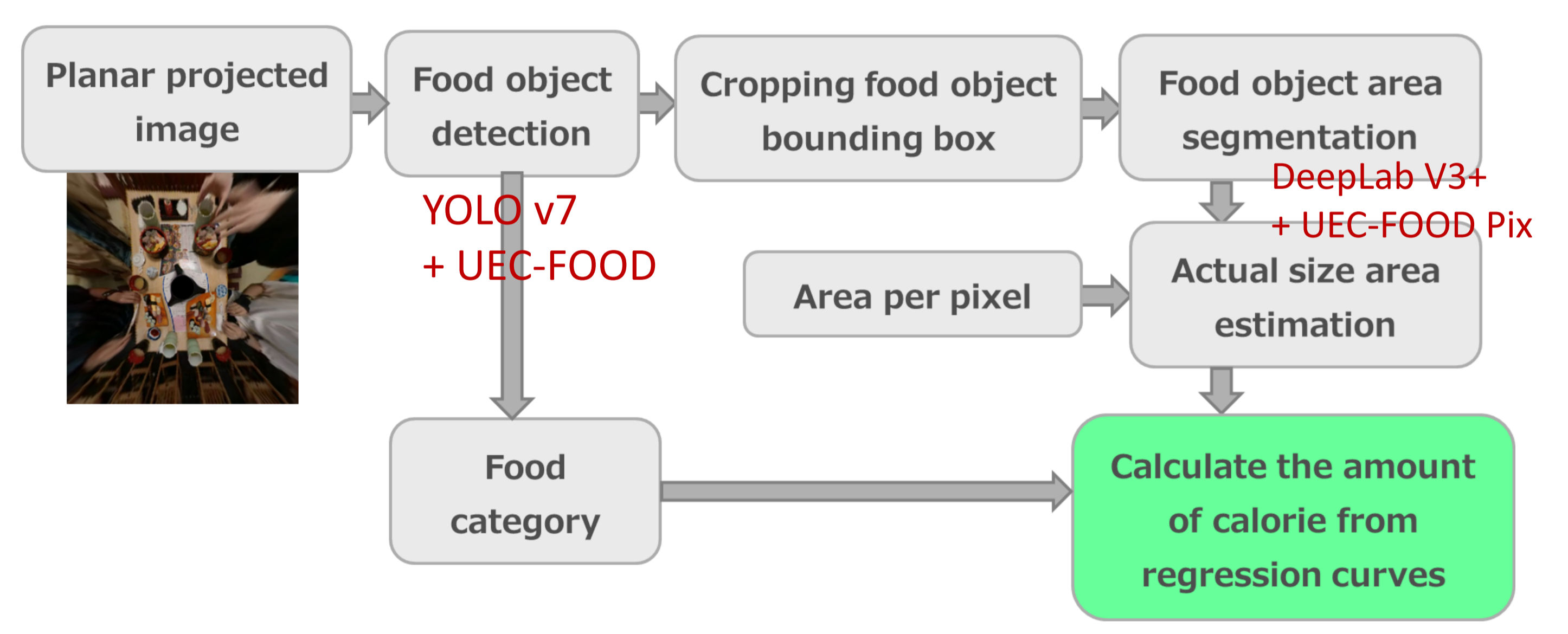
METHOD

Overview

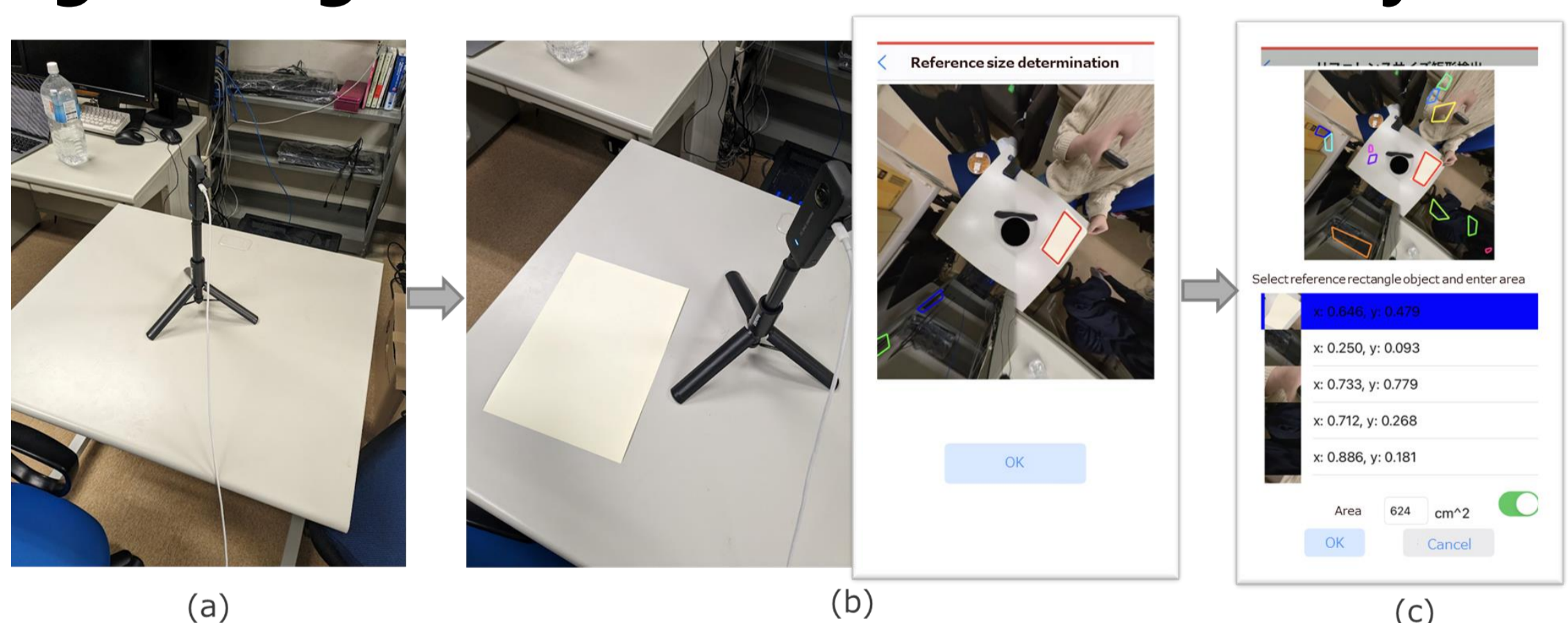


METHOD (continued)

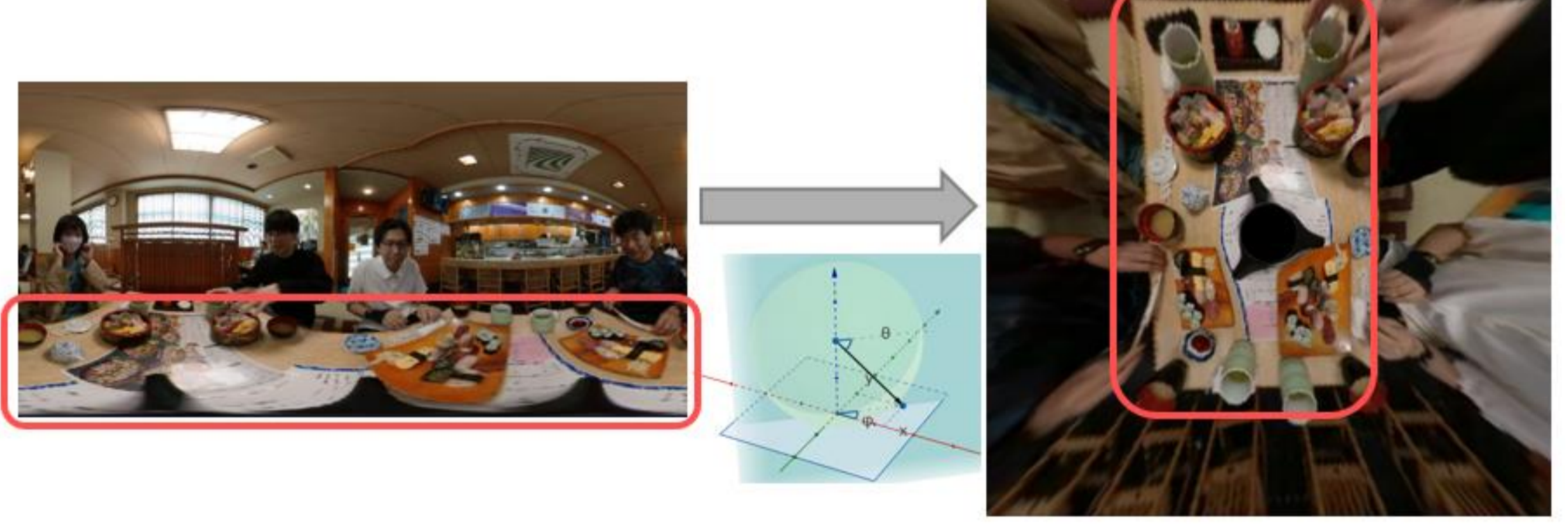
3) Food detection, segmentation & calorie estimation



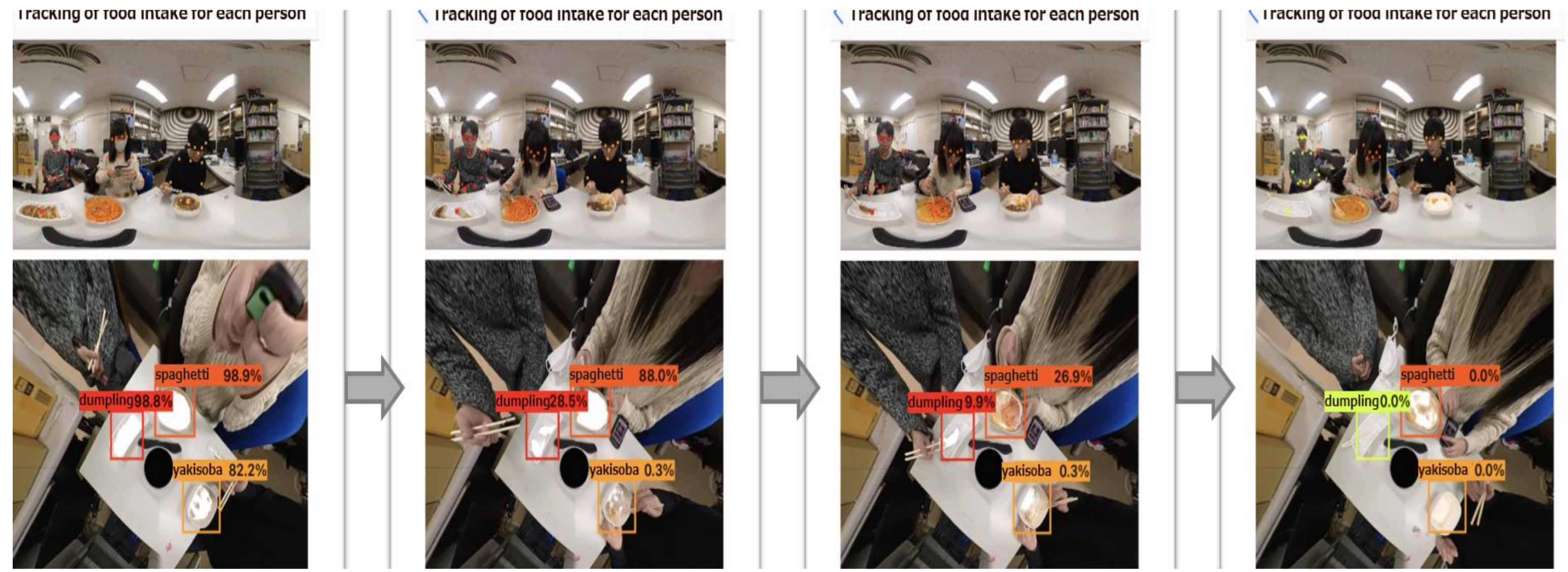
1) Registering of a size-known reference object



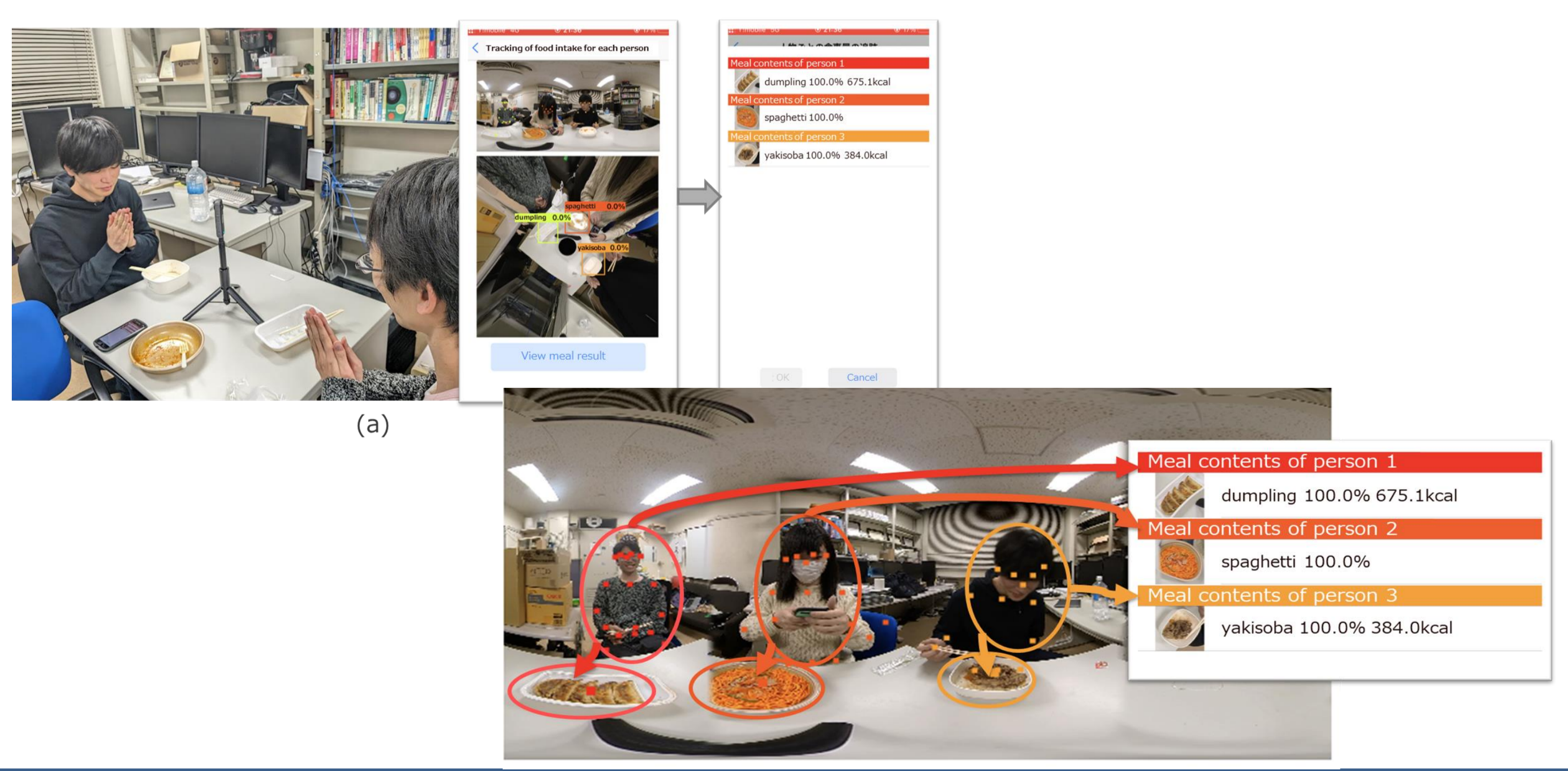
2) Planar projection over a table



4) Tracking the amount of caloric loss in the remaining foods



5) Estimation of total calorie intake of each person



CONCLUSIONS AND FUTURE WORK

- We proposed "CalorieCam360" which was an iPhone app recognizing all the foods on a table and estimating the calorie amounts of each of them using an omnidirectional camera, Insta360 X2, and iPhone.
- [Limitation] Current app can recognize only 15 categories of UEC-Food.
- [Future work] More categories, evaluation by user studies and adding face rec.

REFERENCES

[1] Takumi Ege and Keiji Yanai: Image-Based Food Calorie Estimation Using Knowledge on Food Categories, Ingredients and Cooking Directions, ACM MM WS, (2017).
 [2] Koichi Okamoto and Keiji Yanai: GrillCam: A Real-time Eating Action Recognition System, MMM, (2016).
 [3] Koichi Okamoto and Keiji Yanai: An Automatic Calorie Estimation System of Food Images on a Smartphone, MADiMa, (2016).