

Food Waste Reduction Using a Smart Scale Device in German Catering Facilities

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Abstract

German restaurants produce about 414.410 t of food waste per year, of which around 55% could be avoided (Schmidt et al., 2019). A reduction of food waste contributes to Sustainable Development Goal 12.3 which aims to halve food waste in the consumption stage until 2030 (United Nations, 2015). Furthermore, reducing food waste also lowers input cost: foodservice businesses may reduce their input by about 5% when using waste-tracking technology (Read and Muth, 2021). Using automated tools helps to collect continuous and detailed data (Eriksson et al., 2019). In this poster presentation, first results of the innovation Kitro which was tested in the Horizon 2020 project LOWINFOOD will be demonstrated. Kitro is a smart device consisting of a scale and camera which can be integrated into any kitchen waste bin. When installed, the device takes a picture automatically every time something is thrown into the bin. The weight is measured by the scale at the same time. The pictures are then analysed using artificial intelligence to identify the wasted food item. Both category and weight of the food waste can be viewed via an online dashboard. Here, guest numbers and input prices can be entered by kitchen management so that relative values, such as waste per guest, are calculated. Kitro staff helps interpret the data and suggest measures to reduce food waste fitted to the specific facility. The study has the goal of showing extensive food waste data originating from two different catering settings (business and hotel catering) in Germany. In the organisations under study baseline measurements over a period of four weeks were conducted without the use of the Kitro dashboard. Subsequently, the device was used over a period of 11 months. The data gained from this study will be analysed and presented at the RETASTE conference. In detail, the daily guest count and food waste in kg were recorded. Both guest count and food waste are further spliced into time of day. From this information, it can be analysed which meal of the day causes the most food waste, including differentiating between weekdays. Because the food waste was separated into food categories as well as the waste categories unedible plate waste, edible plate waste, overproduction, and preparation waste, it can be shown which category was the least and most influenced by the Kitro innovation. As this data was collected for three different settings, the differences will be presented. At the time of abstract submission, the described data is still being cleaned and evaluated.

Keywords: food waste, artificial intelligence, food service

References

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