

A Decision Support Model for CO₂-Based Food Portion Selection

Natasha Blazheska-Tabakovska
Faculty of ICT-Bitola
University St. Kliment Ohridski Bitola
Bitola, R. of N.Macedonia
natasa.tabakovska@uklo.edu.mk

Gjorgji Petrovski
Faculty of ICT-Bitola
University St. Kliment Ohridski Bitola
Bitola, R. of N.Macedonia
petrovski.gjorgji@uklo.edu.mk

Mimoza Bogdanoska Jovanovska
Faculty of ICT-Bitola
University St. Kliment Ohridski Bitola
Bitola, R. of N.Macedonia
mimoza.jovanovska@uklo.edu.mk

Anka Trajkovska Petkoska
Faculty of Technology and Technical
Sciences-Veles
University St. Kliment Ohridski Bitola
Bitola, R. of N.Macedonia
anka.trajkovska@uklo.edu.mk

Abstract—This paper presents a data-driven application for estimating CO₂ emissions per food portion, enabling users to assess the environmental impact of their dietary choices. Carbon dioxide (CO₂) is one of the primary drivers of contemporary climate change, and it is released not only through industrial activities and transportation, but also throughout the life cycle of food products—including production, processing, transportation, and consumption. Despite this, the environmental impact of food is often underestimated, and awareness of how everyday dietary choices contribute to overall emissions remains limited. The system is based on a structured carbon footprint database and translates emissions data into clear, practical information to support more informed decision-making about food consumption. The proposed solution integrates sustainability principles with computational methods, demonstrating how data-driven approaches can enhance environmental awareness. By quantifying the CO₂ footprint of food portions, the application provides a practical tool for understanding the environmental consequences of everyday dietary decisions. Overall, the paper highlights the potential of combining environmental assessment concepts with software implementation to support sustainability-oriented decision-making in real-world contexts.

Keywords—climate change, CO₂ emissions, data-driven systems, decision support systems, food portion analysis