"RecycLearn" supports Munich citizens to separate trash properly

Munich, 18. January 2022 – Team PC6 (Munich University of Applied Sciences)

Within the framework of the Co-Innovation Lab, a team of students developed a smartphone application for Stadtwerke München (SWM), Munich's municipal utilities company, designed to create awareness among Munich citizens about recycling processes and locally applicable regulations for waste management. Through image recognition, "RecycLearn" informs app users how and where to discard household waste correctly. With this innovative solution, SWM, Munich University of Applied Sciences (MUAS), and Tampere University (TAMK) are promoting the move towards a circular economy.

Application Logo

SWM wants to support the City of Munich in becoming climate neutral by 2035

After the City of Munich had declared a climate emergency in 2019, SWM pledged to support its city in the mission of becoming climate neutral in the areas of mobility and energy. An article on urban mining inspired the public service provider to find a way to increase Munich's recycling quota to keep more raw materials in the material loop instead of extracting these valuable resources from the earth. To tackle this, SWM decided to collaborate with the Co-Innovation Lab of MUAS and challenged an international student team of 10 Business and IT Bachelor and Master Students of MUAS and TAMK to come up with a creative solution.

**Munich is producing too much residual waste**

According to Abfallwirtschaft München (AWM), the recycling quota in Munich was at 56,3 % in 2020 and most of the waste discarded in the City of Munich was residual waste. In figures, residual waste accounts for approx. 314.265t (201kg per person) of the 573.982t of trash collected in 2020. As most of the latter is burned, the used materials will be lost forever. To increase the recycling quota, Munich citizens therefore need to be empowered to act responsibly and consciously when it comes to trash separation. But what is keeping them from separating their waste even more thoroughly? When asking individuals on their recycling behaviour in a survey, it became apparent that they often struggled with trash separation due to a lack of knowledge on how and where to dispose of their waste, especially as there are different rules and regulations depending on the place of residence.

"RecycLearn" empowers citizens to recycle better through image recognition

With RecycLearn, the student team developed an interactive application designed to provide information to people of all ages on recycling processes. By simply uploading or taking a picture of the product or product packaging to be discarded, the image recognition software detects the product

category based on a connected database and provides information on the raw materials contained in the product. Moreover, it will be shown where and how to dispose of these scanned products or packages correctly. Furthermore, the application raises awareness for a clean and environmentally friendly city of Munich by including education content that provides hints on waste management or ways how to avoid common recycling mistakes.

Stella Wilcke, IT Innovation Hub Facilitator and Cloud Business Consultant at SWM, is convinced by the solution: *"The RecycleLearn app conveys valuable knowledge about recycling with the tips provided and is very easy to use thanks to image recognition on the smartphone. SWM can thus support the citizens of Munich in their own responsibility to contribute to environmental protection and the reduction of raw material waste."*
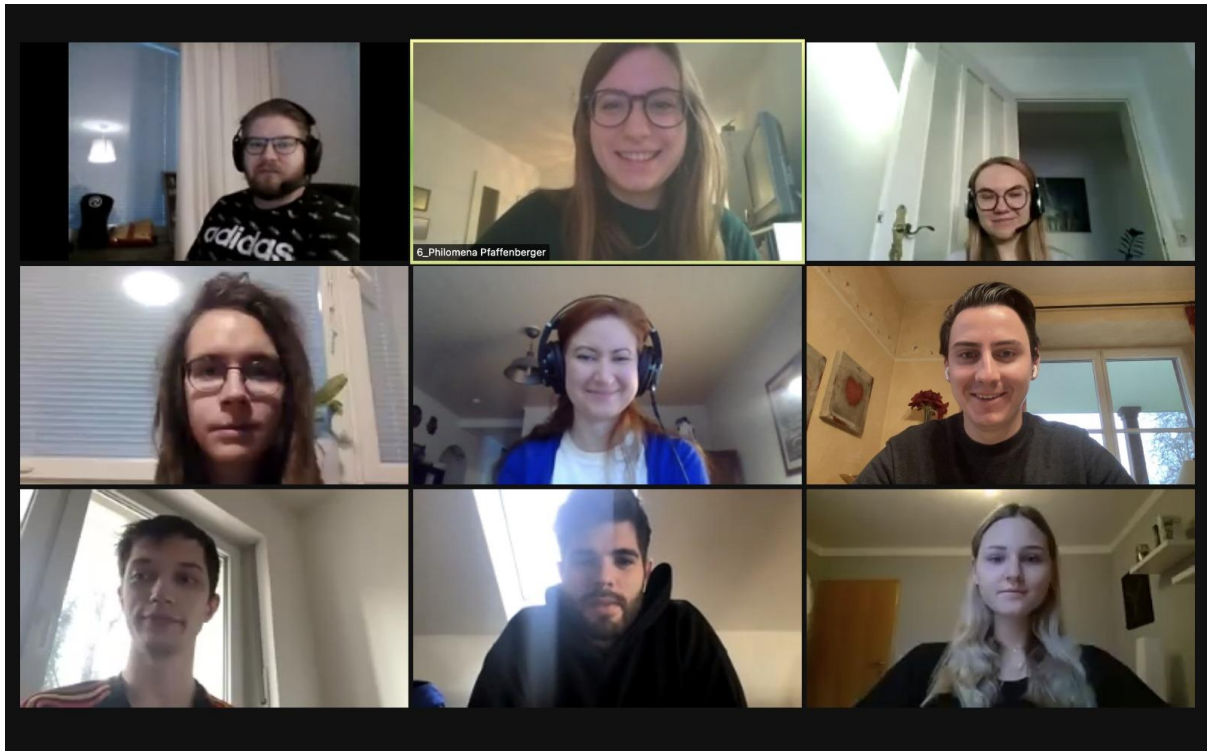
Virtual Meeting with SWM (from left to right): Jani Koski (TAMK), Philomena Pfaffenberger (HM), Stella Wilcke (SWM), Patrik Sipi (TAMK), Terhi Salonen (TAMK), Tim-Robin Burghardt (HM), Maksim Kurdyumov (HM), Ricardo Pereira da Silva Fernandes (HM), Vanessa Veselinovic (HM)

This Co-Innovation project was carried out in **cooperation with the Digital Transformation Lab (DTLab)** at Munich University of Applied Sciences:

The Digital Transformation Lab (DTLab) at Munich University of Applied Sciences is dedicated to the major social challenges of our time. Together with stakeholders in the public sector, students develop forward-looking solutions. They are supported by Amazon Web Services with state-of-the-art cloud technologies and the Working Backwards innovation methodology. We live digital transformation.

More information about the Co-Innovation Lab and the Digital Transformation Lab (DTLab) at Munich University of Applied Sciences:

- Website Co-Innovation Lab: https://www.co-inno-lab.org/
- Website DTLab: https://hm.edu/dt-lab/