

proDruck

3D PRINTING – TECHNOLOGY OF INDUSTRY 4.0 – AS A MEDIUM FOR INCLUSION OF PEOPLE WITH DISABILITIES IN THE WORK WORLD



In the project proDruck a holistic employment model for people with disabilities will be developed. Focus is the development and 3D printing of individual technical assistance systems for people with disabilities, which enables help for self-help. With the development of new business models and web-based training concepts, the participation in sustainable technologies and their active co-creation will be possible. A 3D printing workshop is planned, which is adjusted to the specific needs of people with disabilities.

PROJECT OVERVIEW

DURATION



10/2018 – 09/2021

PARTNER



- Paderborn University (C.I.K.; FAM)
- von Bodelschwingsche Stiftung Bethel
- LEONEX Internet GmbH
- trinkle 3D GmbH

FUNDED BY



Federal Ministry of Education and Research (BMBF)

RESEACHER



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Federal Ministry of Education and Research

Project aim

The project has two main aims, the building of a 3D printing workshop and the development of a 3D printing online platform (see figure1). The workshop will be supplemented through the development of training concepts, which impart knowledge about the arranged workplaces and 3D printer adjusted to the different learning levels. The 3D printing online platform will include a communication forum for users. Online trainings will be implemented which impart knowledge about construction, parametrization and manufacturability of 3D printed parts. Furthermore the possibility of uploading self-designed parts will be given. This gives other users the opportunity to buy the part with individual changes. A special quality program checked the manufacturability of the part and ordered it in the 3D printing workshop. With the successful implementation, the online platform enables the transfer of the idea of one individual across Germany. Beyond the developed installation aids can be conducted as a role model for the industry to enable people with disabilities to have access to many sectors of the economy, which has been lacking so far. This can promote inclusion and create more jobs for people with disabilities.

First results

First product ideas, especially in the assembly aids area, were realized and tested within the Bethel workshops. The example shown in figure 2 is for the assembly of small screws and nuts. This enables the affected persons to assemble even small screws and nuts with less problems. This increases the proportion of people who are capable of this work and thus the scope of duties of the affected persons.

Additionally, first ideas for everyday aids were developed and the manufacturability and usability will be evaluated at the university. One of the most impressive examples so far is a food dispenser for an assistant dog of a highly disabled young child (see figure 3). This enables him to reward him for good action, thus, this will raise interaction between both to bond their relationship in daily life.

For the workshop, the location was selected under consideration of different requirements, which are important for a location that works for and with people with disabilities. The workshop aims to purchase two Ultimaker printers.

Outlook

The implementation of the online platform will be elaborated further in order to bring a prototype into action at Bethel by the end of the year. Furthermore the development of the trainings for the online platform and the 3D printing workshop will start.

The overall project aim of identifying required products for people with disabilities will be increased. Bethel has planned over 30 workshops, who all have different assembly aids, which will be checked if there are any possibilities to improve these aids through the manufacturing with 3D printing. As the project progresses, the acceptance of 3D printed components will increase among the people working in the Bethel workshops. The knowledge about the possibilities of 3D printing will also grow, so that in the course of the project the ideas for everyday aids will also come directly from those affected persons.

Project information

In addition to the above named project partners an associated network is intended, with organizations like the BeB (Bundesverband evangelische Behindertenhilfe) and the BAG (Bundesarbeitsgemeinschaft Werkstätten für behinderte Menschen e.V.), medical houses with interest in 3D printing and companies with interest in inclusion especially in the production area.

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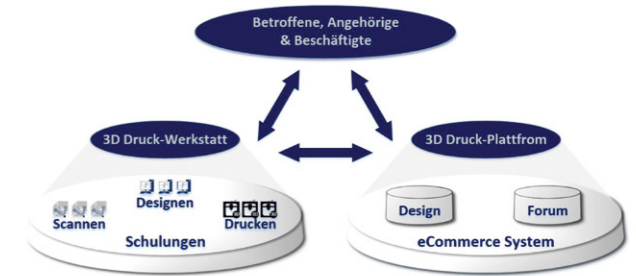


FIGURE 1 Aim of the project

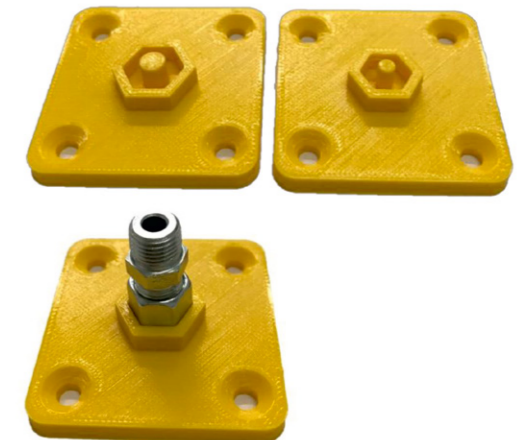


FIGURE 2 Screws and nuts assembly aid (left: 6mm, right: 4mm)



FIGURE 3 Food dispenser