

## **FINAL PUBLIC REPORT**

### **THE CROWD PLASTIC WASTE PRINTING PROJECT**

#### **ABSTRACT**

The Crowd Plastic Waste Printing Project is a collaborative project among The New Raw and Plastic Twist Platform. The idea tests the use large scale robotic 3D printing as a rewarding mechanism for good plastic recycling performance. The combination of the Plastic Twist digital platform and the Robotic facilities of The New Raw were put into use and resulted in a modular 3D printed element that acts as a single product but also as a component that stimulates bigger community projects.

#### **INTRODUCTION**

During this residency, The New Raw, based in Rotterdam (NL) collaborated with Plastic Twist to propose an alternative way of motivating citizens to recycled more and activate them to build communities for participatory public design. The proposal is based in the revaluation of recycled plastic from a useless side product of human activity to a new, useful asset that can be used in product design industry through the use of robotic 3D printing technique. By taking the users' needs and reality as a starting point of the design process and by decentralizing it, the goal is to involve all stakeholders in understanding the relationships among plastic collection, recycling, reuse and revaluation in order to make this process more and more a part of our lifestyle and everyday life. By using crowdsourcing approaches and gamification technologies along with the product design process, the goal is to enrich awareness of communities concerning the life cycle of plastics while at the same time enable them to get involved in a process of improving their cities and home environment through sustainable solutions.

#### **ARTWORK**

The outcome of the residency is a modular object, entirely fabricated from recycled plastic waste with the use of robotic 3D printing. The element acts as a reward to the users of the PT digital platform according the recycling performance. To fulfill the matter of engagement around the revaluation process, users got encouraged to join the design process by proposing their own ideas on how they wish to improve their communities. They were also encouraged to bring their own collected plastic to be recycled and simultaneously be observers of this transformation of waste into something useful for their community. Key element of the module is that of adaptability, as users can decide on how they want to use it to meet their needs in different situations. It can be flipped and turned in different orientations and create variations of topologies, whether users want to use it as a stool, a bench or a pot/fountain to fill with plants etc. In this way, an interactive dialogue is opening between the user and the proposing product.

#### **METHODOLOGY**

The residency started with the ambition of using crowd sourcing tools of PT in social media as an interface for custom 3D printed artefacts that would act as a physical representation of a communal pulse. Unfortunately, the latest legislation in GDPR did not allow such an

advanced approach. Given the time and the legal limitations, the residence focused on a more physical integration of participatory design from the users through workshops and modular design.

Towards the initial goal, valuable experience was already gained from similar piloting initiatives such as the Print Your City project of TNR, in which the citizens of Thessaloniki (GR) were encouraged to collect their plastic waste and transform it into alternative street furniture for an improved version of their city, by proposing ideas and voting for their favorite design. The goal achieved is to inspire a healthier lifestyle in the cities by introducing the zero-waste logic to the citizens. In a relevant background, Plastic Twist platform aims to launch and establish a new plastic culture through an open source environment that combines knowledge and ideas for a sustainable and innovative use of plastics. To achieve that, the use of crowdsourcing tools would be essential as it could contribute in the collection of useful data from social media such as comments, reactions etc. These data could be further analyzed to provide more practical ideas and solutions on how citizens imagine the improvement of their urban environments.

## **IMPACT**

### **A. Research Impact**

The residency offered a fertile ground to expand the research concerning the use of blockchain technologies and crowdsourcing tools in the scope of creating a plastic reuse value chain. The impact of this research was significant, and the team managed a great step in the direction of using raw data coming from social media such as comments, reactions, hashtags etc. and transform them into useful information that can have a practical application in the improvement of urban environments. The potentials of collecting and analyzing such data can actually contribute into decoding the opinions of citizens around the world into innovative and sustainable solutions for their cities. In the same time, research on the blockchain logic and technology combined with the idea of monetizing plastic waste leads to the concept of providing services such as virtual marketplaces and monetary systems where users can have facilities such as Plastic Wallet and Plastic Tokens, that represent amounts of recycled plastic waste. These citizens-driven use cases conceptualize local ecosystems, which result in sustained plastics-as-an-asset activities of incentivized communities instead of following conventional recycling practices.

### **B. Artistic Impact**

Concerning the artistic impact, the residency also offered great opportunities for further experimentation on participatory design and on how to translate and incorporate information gained from crowdsourcing tools into the design process as assets of the designed outcome or even as design guidelines. In the same time, the goal to create more performative components that users could interact with by creating different topologies, posed also a great challenge in expanding the ideation process. Especially the multifunctionality and stackability guidelines really pushed the design team to think out of the conventional context.

## **ART-SCIENCE INTER-RELATIONSHIPS**

Technology and art can contribute in the bridging of the digital and the physical world in a meaningful way. Robotic 3D printing provides the freedom to materialize anything one wishes. In parallel the global abundance of plastic waste provides a rich local material resource. Nevertheless, their combination comes with limitations which creative thinking in science and art can overcome.

This residency presents just one way of achieving all the above and intends to act as an inspiration for future artists, scientists and creatives in general.