

## FDGA Project Final Report

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This report presents the outcomes of my FDGA sponsored wearable technology garment creation project entitled "Cycle of a Hope: A wearable bicycle riding outfit incorporating Electroluminescent (EL) tapes and a LED ring light". This project is accepted by the Journal of Sustainability's special issue on the topic of "Sport, Tourism, and Hospitality for SDGs (United Nation's Sustainable Development Goals)" to be published by fall this year. To fit the journal's topic, the created garment was designed to address three goals in SDGs: Climate action, Gender equality, and Sustainable cities and communities. The garment is aimed to encourage people to become bicycle commuters, instead of using fossil fuel consuming transportation modes. Based on previous studies addressing women's stronger concerns on bicycle's road safety than men, the garment was designed to enhance wearers' visibility at night with two embedded EL tapes and a LED ring light on the garment. The styling concepts and silhouette of the garment were inspired by the contributions of 1890's Victorian rational dress reform and the emergence of bicycle to the women's access to opportunities. Today, bicycles donated by international charities such as the World Bicycle Relief provide new opportunities for people, especially students living in developing countries. To express passion and hope of people growing their dreams on a bicycle, red and orange colors were used in the garment design. These colors also increase bicycle riders' visibility on the road. Overall, the presented wearable garment attempts to illustrate SDGs' purposes for making more inclusive, safe, and sustainable cities and society for humans. The main medium of the garment is a mulberry paper-based textile called *Hanji*, produced by using Korean traditional paper making methods and techniques. Rather than using 100% *Hanji* with a stiff surface texture, a silk blended *Hanji* (70% Mulberry Paper, 30% Silk) was selected for a soft texture of the garment. The used fabrics were created by one of the sustainable textile companies specialized in the novel natural cellulose fabric development based out of South Korea. To construct the garment, high-functional materials such as stretch mesh fabric and 3M™ sew-on reflective tape were combined with *Hanji*.

After the completion of the project, my achieved outcomes include the enhancement of my wearable design research capacity and pedagogical skills to teach innovative and sustainable product development methods for students. I plan to submit the abstract of this research to the FIT's Sustainable Design and Business Conference and SUNY IITG Conference in 2021. My experiences and knowledge gained from this FDGA sponsored project are enormous. I would like to express my special thanks to professor Elaine Maldonado and Celia Baez at the Center for Excellence in Teaching for helping me this research project possible.



Figure 1: The completed wearable garment

without lights on



Figure 2: The completed wearable garment with lights on