Perovskite Solar Module Enabled IOT Asset Tracking for Wildlife Conservation

An animal-tracking system developed by Saule Technologies will support the monitoring of European bison in Ukraine. Local partner World Wide Fund for Nature (WWF) Ukraine, WWF Poland and Saule Technologies will cooperate on the “Perovskite Solar Module Enabled IOT Asset Tracking for Wildlife Conservation” initiative under the Challenge Fund: Polish Solutions for SDGs Fund, with the financial support of the Ministry of Foreign Affairs of the Republic of Poland.

“The European bison is the largest herbivore in Europe which was affected by poaching and unsuitable natural resources management. Such factors have pushed these mysterious bulls to the edge of extinction. We were close to losing a part of our history and an important element of the European forest and forested-steppe ecosystems. Fortunately, society has recognized this threat and taken measures in time and started to recover the bison population from zoo and private collections in the past century,” says Bohdan Vykhor, PhD, Wildlife Programme manager at the WWF Ukraine. Vykhor explains that bison population recovery is an ongoing process. “The species was reintroduced to various areas in Europe with significant efforts from different wildlife conservation programs (WWF, LHI, COA, IUCN, LIFE EU) and great work should be done in the future. We need to connect the free moving bison population divided across Europe and support natural gene flow. Using tracking systems on captive animals is an important element for understanding their behavior in the natural environment, ecological corridors and crucial habitats for different stages of their life cycle - so vital data is key to the success of species conservations.” Work on the support of ecosystems benefits the health and wellbeing of society at individual and social scales. The initiative is compliant with the Sustainable Development Goals (SDGs), such as Climate Action, Life on Land, Sustainable Cities and Communities, and Affordable and Clean Energy.

Saule Technologies is developing a new generation of inkjet-printed perovskite solar cells on flexible substrates. Most of the animal-tracking devices available on the market have a very limited operational lifetime, which hinders in obtaining large samples of animal life movement data. Moreover, available solar-powered wildlife tracking equipment use silicon solar cells, which exhibit a very poor performance in shadowed areas and are easily damaged in rough environments. The perovskite solar cells developed at Saule Technologies work in various light conditions, can be printed on flexible substrates, and are resistant to harsh outdoor conditions. This technical solution creates the possibility of wild animal tracking and GIS-related data collections for a lifetime.

The project aims to develop an effective solar-powered system for animal tracking that can support successful movement monitoring of the bison by providing lifetime data about their behavior in their natural environment. The project is financed by the *Polish Challenge Fund*, an effective driver of innovation and change in the region.

If you are interested in this initiative or the Polish Challenge Fund, please use the following contacts:

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