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BLINCSAT – IOT SATELLITE MONITORING FOR COMBATING ILLEGAL WILDLIFE HUNTING  
IN NON-SERVICE AREAS IN JORDAN: SAFEGUARDING BIODIVERSITY THROUGH  
INNOVATIVE TECHNOLOGY

**Abstract**

Illegal hunting, trade, and collection of wildlife in Jordan caused the extinction of several species of Jordanian wildlife, between 2015 and 2016, 4,707 native animals belonging to 59 species were killed. Birds constituted the majority of the animals killed, followed by mammals and reptiles. The Royal Society of conservation of nature (RSCN) is mandated to enforce regulations related to protecting wildlife, however, tracking hunters is challenging considering the majority of endangered wildlife is distributed in out-of-network coverage areas. This project proposes a solution through a satellite platform, that is designed and communicates with IoT nodes that will be attached to animals, it has low transmitting power using cost-effective, low-powered LoRa as a communication device. COTS components are used during this project implementation, and some parts will be custom designed according to the mission requirements, the satellite model and nodes include the main necessary subsystems: power system, command and data handling, communication, mission subsystem, and ground station. The project will be tested on a sample of wildlife in Dana biosphere reserve as it is considered the largest reserve in Jordan with a limited network and home to 25 endangered species, starting from there as validation for the mission concept and could be scaled up to target other potential applications using multi-purpose IoT nodes with direct communication with satellites that will be discussed in this paper. This project is an educational platform for students from different universities in Jordan, a country that has no space agency, space strategy, or space programs, this project is supported by Borderless Lab – BLINC and aims to address national issues and needs through space technology, establish sustainable space projects, enhance international collaboration and knowledge transfer as this project is supervised by an avionics engineer working in the European space industry. Furthermore, this project contributes to UN SDGs: Life on Land, Quality Education, Industry, Innovation, and Infrastructure.