

# RESEARCH AND DEVELOPMENT FUND PROJECT SPOTLIGHT

## East African Smart Villages and Rural Mobility

SMART-COLD: A Scalable and Modular Approach for Real-Time Cold Chain Management using IoT and LEVs

### Project Summary

East African Smart Villages and Rural Mobility aims to develop and integrate Internet of Things (IoT) enabled cold chain into their off-grid powered, light electric vehicle (LEV) with the aim of enhancing market access for smallholder farmers produce. It boosts climate resilience and food security, creates rural jobs and optimises energy and logistics through smart technology.

### Project Description

East African Smart Village and Rural Mobility will develop an IoT -enabled, decentralised and mobile cold chain hardware platform to extend cold chain support to rural Africa. This cold chain will always be monitored and managed through a network of affordable sensors and switches using their soon-to-be-deployed low-power, wide area networking protocol (LoraWan) network. This project will unlock innovations for smallholder farmers and in doing so contribute to the following:

- Unlock export markets: Improve access to lucrative export markets through aggregation and supply chain visibility
- Off-grid power: Use off-grid power for batteries and refrigeration units, reducing reliance on fossil fuels and poor grid access
- Energy efficiency: Smaller vehicles require less energy for cooling and have less heat dissipation
- Smart energy management: Optimise energy consumption and vehicle performance using smart sensors and controllers to monitor and adjust according to conditions
- Routing and scheduling: Use real-time data and analytics for optimal routing and scheduling based on traffic, weather, demand, and availability of distributed energy
- Excess energy use: Use excess energy when solar batteries are at capacity, support demand-side management of electricity, prioritise cooling over speed when out of range, and alert for dispatch of a backup battery
- Granular pricing: Enable granular pricing based on energy used for cooling per unit mass per unit distance



### R&D Partner

East African Smart Villages  
and Rural Mobility

### Organisation Founded

October 2021

### Technology

Mobile cooling

### Project Location

Kenya

