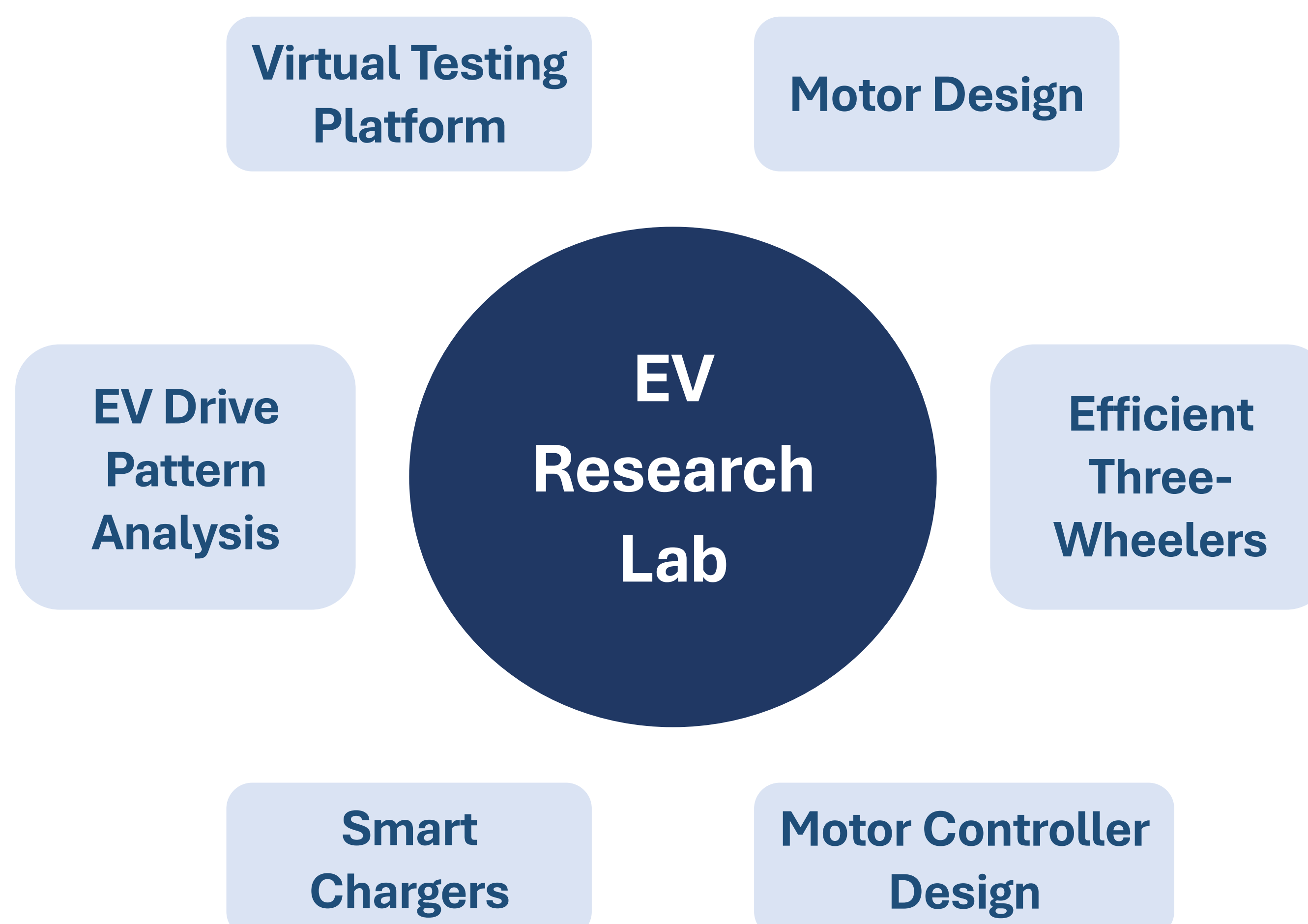# Electric Vehicle (EV) Research Laboratory

Lab Overview

The Electric Vehicle (EV) Research Lab is dedicated towards developing technologies to efficiently utilize the full caliber of electric vehicles. With the goal of exploring various multidisciplinary research areas for development of **EV batteries, charger, and vehicles**, the EV Research Lab is ready to be integrated into the 4IR Advanced Research and Innovation Park at the Department of Electrical and Electronic Engineering at Bangladesh University of Engineering and Technology (BUET).
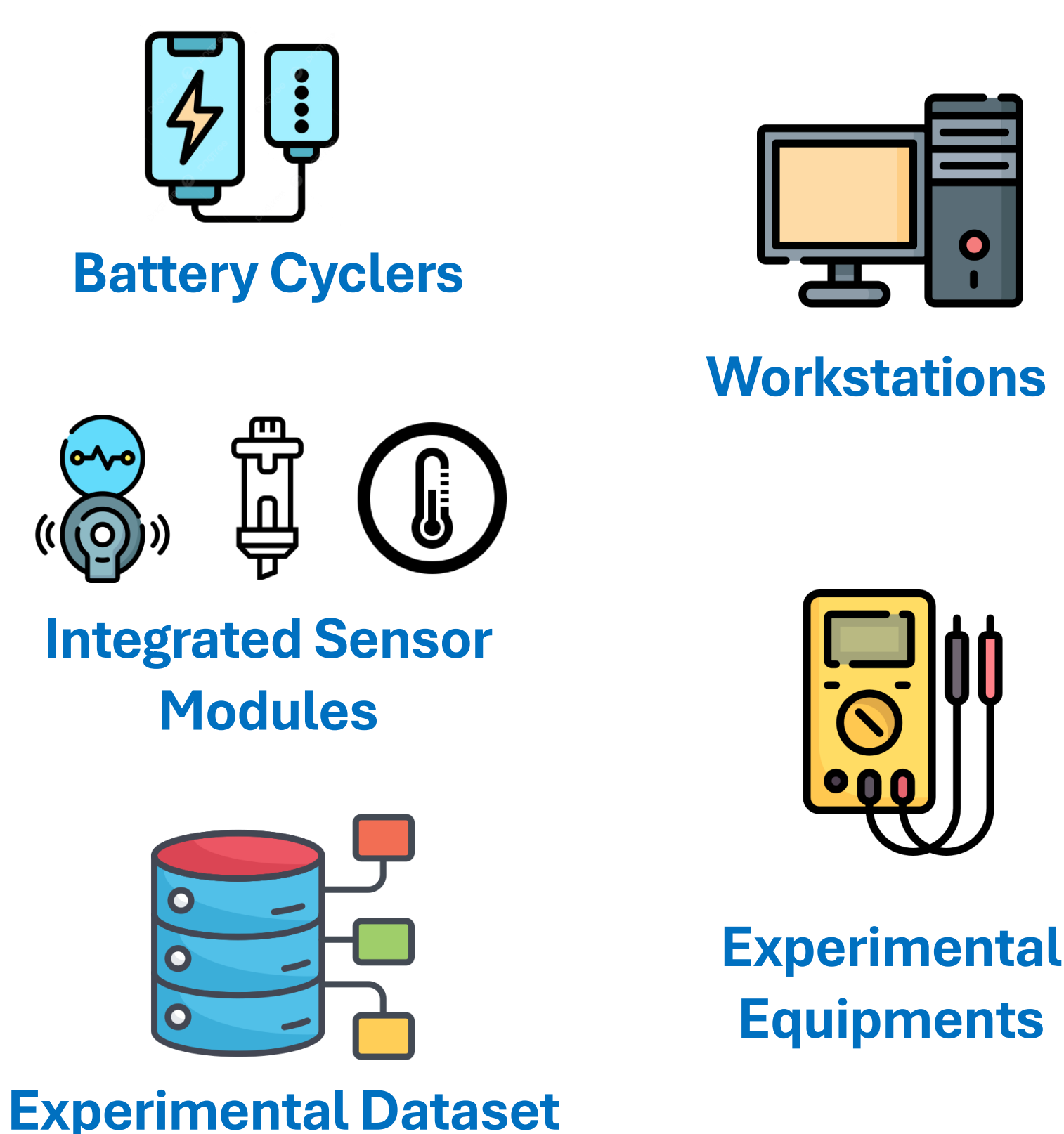
Primary Research Focus

- Virtual Testing Platform
- Motor Design
- EV Drive Pattern Analysis
- **EV Research Lab**
- Efficient Three-Wheelers
- Smart Chargers
- Motor Controller Design

Lab Director(s):

- Dr. Md. Ziaur Rahman Khan (zrkhan@eee.buet.ac.bd)
- Dr. Muhammad Anisuzzaman Talukder (anis@eee.buet.ac.bd)

Lab Facilities

- Battery Cyclers
- Workstations
- Integrated Sensor Modules
- Experimental Equipments
- Experimental Dataset

Ongoing Research Projects

Development of a virtual testing platform for electric vehicle batteries
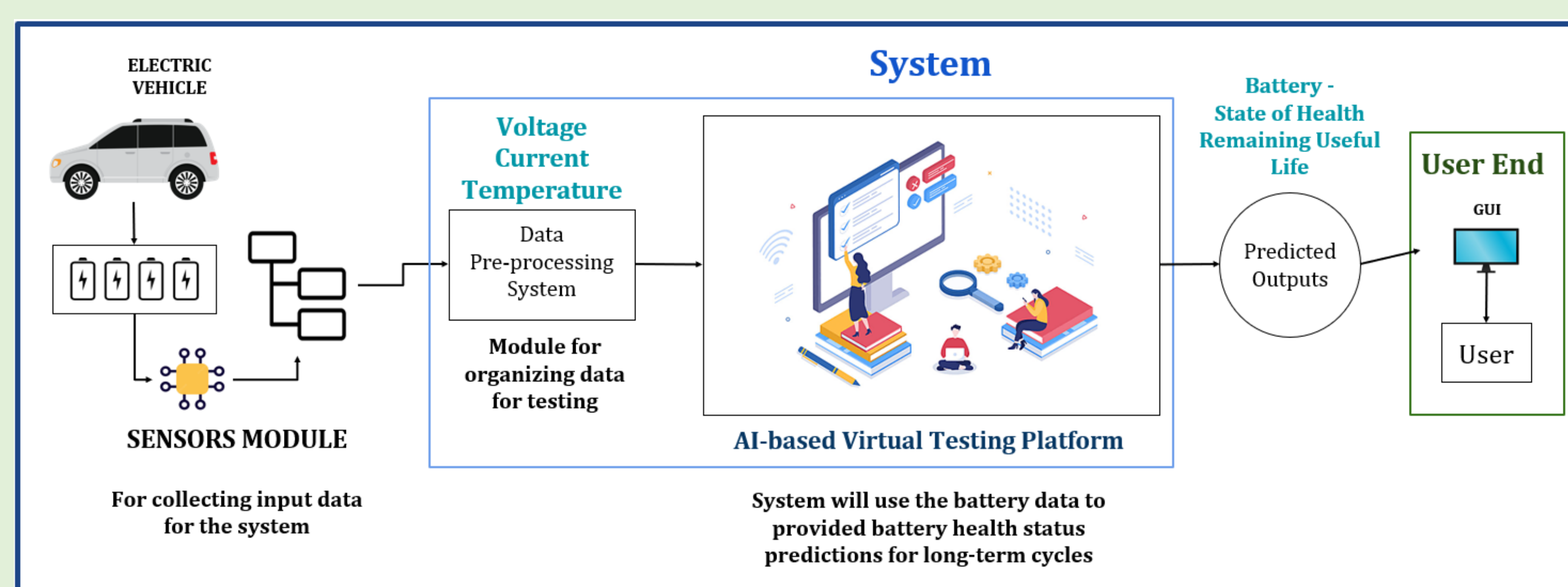
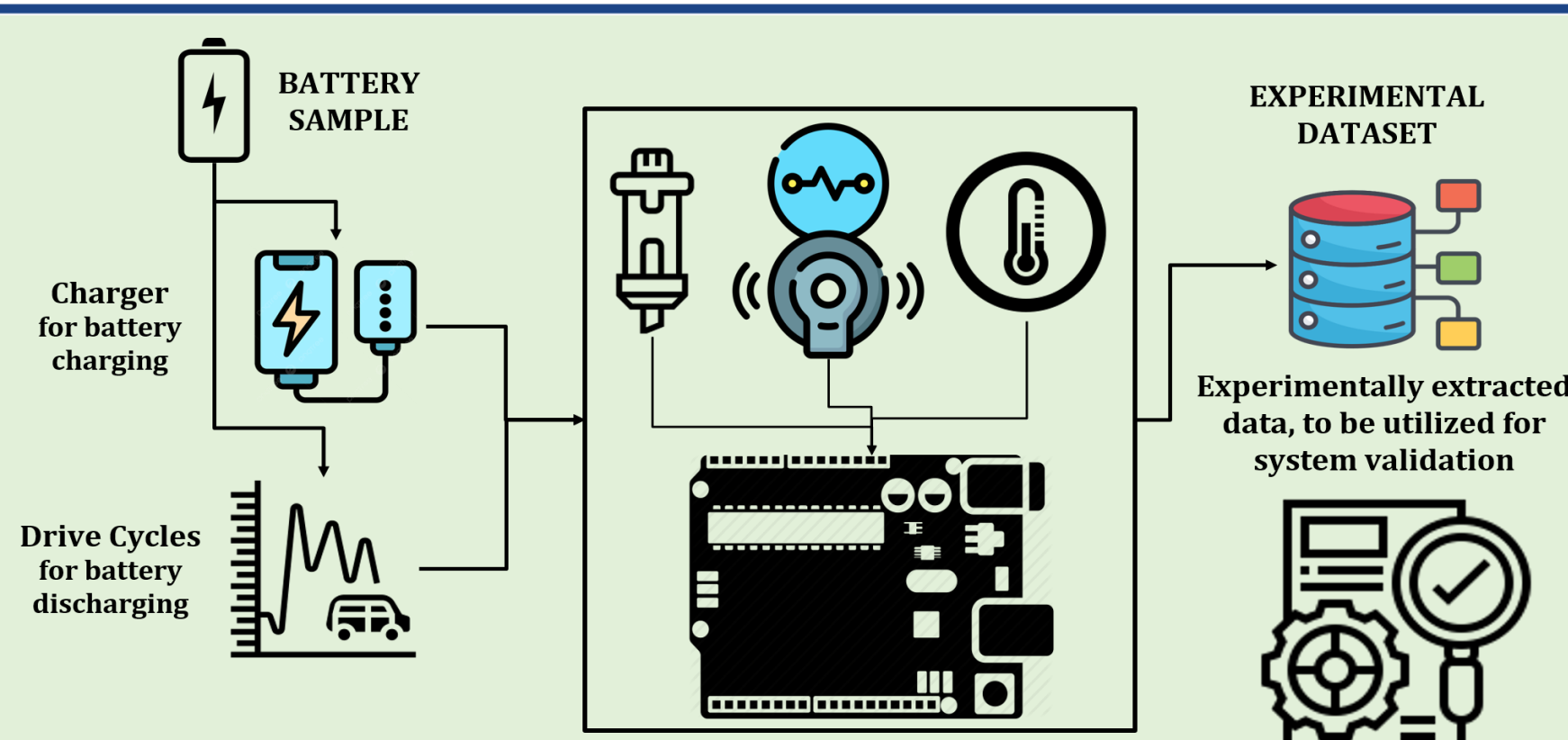In collaboration with **Poly Cables Industries Limited**

Objectives:

❑ Development of an efficient and fast virtual testing platform for EV batteries.

❑ System validation using experimentally generated data, incorporating various operational scenarios.

Works in Progress:

❑ Fully-functional deep learning-based battery health prediction model

❑ Incorporation of vehicle drive patterns in the context traffic in Dhaka, Bangladesh; using experimental data

❑ Development of full pipeline for an end-to-end testing architecture for user-friendly usage

Experimental Setup for Data Collection

Efficient Charging System for Electric Three Wheelers

		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Charging Time (hr:min)	Con	14:20	12:53	12:24	11.11	11.04	12:34	12:32
	Mod	8.30	8:01	8:31	8:28	9:21	6.48	7.33
Energy Consumed (unit)	Con	14.59	13.88	13.75	13.67	13.51	13.81	13.80
	Mod	11.18	10.02	11..25	11.15	11.35	9.28	9.45

20% Energy Saved was achieved

Design of Electric Boat for Urban Transportation

Development of a Design Standard for Easy Bikes in Bangladesh

Design of Electric Motor for Electric Three Wheelers and Boats

DEPARTMENT OF **E**LECTRICAL & **E**LECTRONIC **E**NGINEERING **B**ANGLADESH **U**NIVERSITY OF **E**NGINEERING & **T**ECHNOLOGY

4IR Advanced Research and Innovation Park