

TITLE OF ACTIVITY: Design and Development of a Power Bank using Super Capacitors

SDG Description: 8,9,13

(Logo)



Venue: Electrical Engineering Department NUTECH

Mode: Physical

Date: During year 2024

Duration: One Year

Brief Explanation of the Activity:

The project "Design and Development of Power Bank Using Super Capacitors" seeks to address the limitations of traditional batteries, specifically their slow charging times and short lifetime. By leveraging the high energy storage capacity and rapid charge-discharge potentials of super capacitors, this project aims to develop a modern power bank that offers improved performance.

A capacitor bank, an array of multiple capacitors combined in series and parallel to meet overall system needs, is housed in a metallic frame where each level is referred to as a block. Super capacitors offer higher energy density and more rapid charge-discharge rates equated to traditional batteries, in addition to having a higher operating lifetime. These things nominate super capacitors as an ideal selection for the development of a power bank that is not only effective but also lasting. The design procedure required selecting suitable super capacitors, optimizing the circuit design for efficient energy management, and incorporating safety acts to ensure consistency. The developed power bank was tested widely, demonstrating significantly faster charging times and a longer lifetime compared to conventional battery-powered equivalents.

Pictorial Evidence:

