

## OPTIMIZED DATA MANAGEMENT USING ENERGY EFFICIENT IOT DATA COMPRESSION FRAMEWORK WITH EDGE MACHINE LEARNING

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### ABSTRACT

*IoT devices generate huge data in a very short period of time and they need to be processed and the results to be produced within a time bound. The major challenge in this procedure is to send a large volume of data to the cloud and the power consumption involved in this. Sending large data for a long period of time will drain the battery of the IoT device quickly. One solution to this problem is to use edge devices instead of cloud for processing the data. The advantage of using edge devices over the cloud environment is the data will be processed near the data where it is generated; it will reduce the time between submissions, processing the data and returning the results. In this paper, an energy effective compression method is proposed so as to analyze the data using edge devices along with machine learning techniques. The dataset used here is Udacity self-driving car dataset which consists of 15000 97942 images of 11 classes. The image is applied with lossy compression. Here DCT lossy compression is used before it is transmitted. Next, the compressed data should be reconstructed to be processed in the edge device. The supervised deep learning method (RCNN) with SZ is used for the reconstruction process. It is observed that this proposed method outperforms when compared to the existing techniques.*

**KEYWORDS:** *IoT, Edge Device, DCT lossy compression, RCNN, Udacity self-driving car dataset*

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