**A PROJECT PHASE-I REPORT**

**ON**

**OPTICAL PORT DATA COMMUNICATION USING DLMS COSEM**

SUBMITTED TO THE SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE

IN THE PARTIAL FULFILLMENT FOR THE AWARD OF THE DEGREE

**OF**

**BACHELOR OF ENGINEERING**

**IN**

**ELECTRONICS AND TELECOMMUNICATION**

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**CERTIFICATE**

This is to certify that the project phase-I report entitled

“**OPTICAL PORT DATA COMMUNICATION USING DLMS COSEM**”

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is a bonafide work carried out by them under the supervision of Prof. P. G. Chilveri and it is approved for the partial fulfillment of the requirement of Savitribai Phule Pune University for the award of the Degree of Bachelor of Engineering (Electronics and Telecommunication Engineering)

This project phase-I report has not been earlier submitted to any other Institute or University for the award of any degree or diploma*.*

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1. **INTRODUCTION**
   1. **BACKGROUND**

Energy meters are used for commercial purpose i.e. to record consumption of energy by consumer and correspondingly billing the consumer. In these days in every sector, there are number of customers which use the electricity but they are not satisfied with the services provided by power distribution companies. Electricity authority & the government realizes problems occurring in the existing transmission network, such as increasing cost due to poor operational efficiency, environmental impacts and an ongoing demand for energy. The idea of remote metering was born in the 1960s. Initially, remote pulse transmission was used, but this has gradually been replaced by using various protocols and communication media. Today’s energy meters are data loggers. Now-a-days, meters with complex functionality are based on the latest electronic technology, using digital signal processing, with most functions being implemented in firmware. They give much more than just energy readings. Meters have a large amount of data, which is not practical to read using the given display and can be better read electronically.

* 1. **RELEVANCE**

One of the major components of operational cost in an electrical utility system is the cost of acquiring data on consumption of the thousands of consumers, spread over a large geographical area, connected to the system. Typically, acquiring data on energy consumption is accomplished by making a meter reader visit the premises of each and every consumer and record data manually. Time and again loss of revenue to the utility occurs because of human errors in acquiring data on the consumption of individual consumers. Automating the entire process of acquiring data and billing will reduce the cost by eliminating human intervention in meter reading. The task of collecting data on electricity consumption without human intervention is popularly known as automatic meter reading (AMR). To facilitate automatic data collection, the metering systems should be networked. Networking of meters through dedicated wires, power line communication and wireless channels are being explored. The earlier Common Meter Reader Instrument (CMRI) had a hardware/ software that used different communication protocols as provided by various manufacturers to download data from the meters of respective manufacturers, all of which were generally supplied with their own data exchange formats or protocols. To ensure interoperability of energy meters, implementing open protocol was the only true solution. Today for Indian power sector “IEC 62056 Electricity metering – Data exchange for meter reading, tariff and load control” (DLMS COSEM) is adopted for implementation in meters as the open protocol for meter data exchange. This series of IEC standards are supported by the Indian Companion Specification as IS 15959. This project aims to enhance the homogeneity in different makes of meters by developing a common meter reading instrument that follows DLMS COSEM protocol and reads any meter data accurately and efficiently.