

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY,  
JNANASANGAMA, BELAGAVI- 590018**



**BLDEA's V.P. Dr. P.G. HALAKATTI COLLEGE OF ENGINEERING  
AND TECHNOLOGY, VIJAYAPURA**



**DEPARTMENT OF ELECTRONICS AND COMMUNICATION  
ENGINEERING**

**CERTIFICATE**

This is Certified that the Project entitled "**Traffic Forecasting and Energy-Aware Routing in SDNs Using GNN and MARL**" carried out by AIMAN MANIYAR, Bonafide student of V.P. Dr P.G. Halakatti College of Engineering and Technology, Vijayapura in partial fulfillment for the award of Master of Technology in Digital Communication & Networking of the Visvesvaraya Technological University, Belagavi during the year 2024-25. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirement in respect of project work prescribed for the said degree.

A handwritten signature in black ink, appearing to be "A.S. Yaragal".

GUIDE

A.S.Yaragal

A handwritten signature in black ink, appearing to be "Dr. J. S. Gonal".

H.O.D

Dr. J. S. Gonal  
**Head of the Department**  
Department of Electronics & Communication  
BLDEA's College of Engg. & Tech  
VIJAYAPURA

A handwritten signature in blue ink, appearing to be "B.L.D.E.A. Maniyar & R.G.M."  

**PRINCIPAL**  
**PRINCIPAL**  
B.L.D.E.A. Maniyar & R.G.M.  
College of Engg. & Tech.  
VIJAYAPURA

**BLDEA's V.P. Dr. P.G. HALAKATTI COLLEGE OF ENGINEERING  
AND TECHNOLOGY, VIJAYAPURA**



**DECLARATION**

I, AIMAN MANIYAR, student of Fourth semester MTech, at the department of Electronics & Communication Engineering, hereby declare that, the Project Work entitled "Traffic Forecasting and Energy-Aware Routing in SDNs Using GNN and MARL", embodies the report of my project work, carried out by me under the guidance of Prof.A.S.Yaragal, Associate Professor, Department of Electronics and Communication Engineering. I also declare that, to the best of my knowledge and belief, the work reported here in does not form part of any other report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this by any student.

Place:- Vijayapura

  
AIMAN MANIYAR

Date:27-09-2025