

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 010



PROJECT REPORT ON

**“OPTIMIZATION BOW-TIE ANTENNA FOR ITS
PARAMETERS”**

Submitted in partial fulfillment of the requirements for the award of degree

**BACHELOR OF ENGINEERING
IN
ELECTRONICS & COMMUNICATION ENGINEERING**

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING
ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

MOODBIDRI – 574 225.

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(Affiliated to VTU, BELAGAVI)

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

CERTIFICATE

Certified that the project work entitled “**OPTIMIZATION BOW-TIE ANTENNA FOR ITS PARAMETERS**” is a bona fide work carried out by

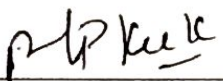
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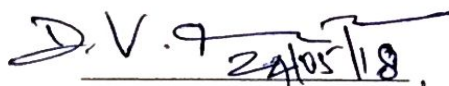
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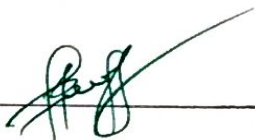
in partial fulfillment for the award of BACHELOR of ENGINEERING in ELECTRONICS & COMMUNICATION ENGINEERING of the VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI during the year 2017–2018. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the Bachelor of Engineering degree.



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ABSTRACT

The present paper deals with a brief review on different shapes of bowtie antenna used to improve its Performance including, better return loss, flatter input impedance, and more stable radiation pattern. Bow-tie microstrip antennas has become one of the most used in the present day communication scenario due to their compact in nature compared to rectangular patches. The ever increasing demand for compact wireless communication equipment explicitly necessitates research in compact antenna options. Design of bow-tie antenna is based on design of triangular microstrip antenna. The bow-tie patch actually is the combination of imaginary image of two triangular patches which are fabricated in a single substrate. The Bow-tie microstrip antennas have been designed for wireless LAN communication, where the operating frequency is at 2.45GHz.

This project was divided into a few parts. Firstly designing the antenna using microwave office software where it involves matching network with the microstrip transmission line feeding. Then simulations need to be done to observe the return loss and radiation pattern of the antenna. Lastly this project will proceed with hardware development by fabricate the antenna and compare the simulation and measurement result. Wireless technology is one of the main areas of research in the world of communication systems today and a study of communication systems is incomplete without an understanding of the operation and fabrication of antennas. This was the main reason for our selecting a project focusing on this field. The first group focused on the fabrication and testing of a slotted waveguide Omni directional antenna and a biquad directional antenna. The second group focused on the design and simulation of patch antennas (which are widely used in cell phones today) with an emphasis on optimization of a 2.45 GHz rectangular probe fed Bow-tie antenna.