

**DESIGN AND ANALYSIS OF RECTANGULAR & CIRCULAR  
MICROSTRIP PATCH ARRAY ANTENNA WITH VIA HOLE  
STRUCTURE USING HFSS**

A project report submitted to Jawaharlal Nehru Technological University, Kakinada in the partial fulfillment of the requirements for the award of degree of

**BACHELOR OF TECHNOLOGY  
IN  
“ELECTRONICS & COMMUNICATION ENGINEERING”**

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**CERTIFICATE**

This is to certify that the project work entitled “**DESIGN AND ANALYSIS OF RECTANGULAR & CIRCULAR MICROSTRIP PATCH ARRAY ANTENNA WITH VIA HOLE STRUCTURE USING HFSS**” is being submitted for the partial fulfillment of requirements for the award of **Bachelor of Technology in Electronics & Communication Engineering** is a bonafied work done by **K.JAYASRI (16811A0425)**, **M.VISHNU (16811A0440)**, **B.SAI PRASANNA (16811A0406)**, **B.BHASKAR RAO (16811A0405)**, **B.VAMSI (16811A0410)** under the guidance during year 2019– 2020 and it has been found suitable for acceptance according to the requirements of the University.

  
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## ABSTRACT

Microstrip antenna arrays play important role in aircraft, spacecraft and missile applications because of their lighter weight, low volume, low cost, low profile, smaller in dimensions besides easy installation and aerodynamic profile are constrains. The major considerations of this work are to enhance the bandwidth, efficiency, Directivity of a corporate feed rectangular and circular patch array antenna with and without cutting holes.

The resonant frequency is chosen at 2.25GHz which is suitable for Wireless Communication Application. HFSS is used to the software environment to design and compare the performance of the antennas. Based on the result analysis, it is noted that corporate feed rectangular patch array antenna and circular patch array antenna via hole structure offers higher bandwidth, higher radiation efficiency and directivity as compared to the antenna configurations without holes.