



**UNIVERSITI TEKNOLOGI MARA**

**DESIGN OF SLOTTED ARRAY MICROSTRIP  
PATCH ANTENNA FOR 2.4GHZ WLAN  
APPLICATIONS**

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## ABSTRACT

Wireless is becoming popular means of data communication for many applications. In this project, slotted array microstrip patch antenna is proposed for wireless. The proposed antenna is capable of receiving and transmitting signals at its operating range. A single antenna element and an array of 1 X 2 of square slotted antenna were designed. In this project, an antenna by use 1 x 2 patch array with slotted is developed for wireless local area network (WLAN) applications. Many applications typically used WLAN in data communication and most favorable used in short range network communication. The array of microstrip patch antenna with slotted give better response as compared to an array of microstrip patch antenna without slotted. Slotting the antenna offer the better performance. The proposed microstrip patch antenna design to be operate at 2.4GHz. The antenna was printed on FR-4 substrate which has dimensions of 90mm x 50mm x 1.6mm<sup>3</sup> with a ground plane and coaxial feed. CST software is used for design and analysis of the antenna. The return loss denotes as  $S_{11}$ , 3D radiation pattern and VSWR have been analyzed.

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# CHAPTER 1

## INTRODUCTION

### 1.1 BACKGROUND OF STUDY

Nowadays, wireless communication has been fast growth and in the next 10 years; wireless applications are estimate to continue growing at a 25% rate. Wireless communication is always used by personal and business computing. The nations share their information over a digital network such as mobile phones, laptops and other wireless communication devices every day. In the transmitting and receiving information, antenna is important devices to use. The type of antenna always use is microstrip patch antenna also known as printed antennas or patch antenna. There are many shapes in this type such as circular, square rectangular and others. An antenna has become popular in commercial until military applications.

Besides that, these types have many advantages such as low cost to manufacture, adaptable and compactness. The antenna operates as the transition between radio frequency front-end circuitary and the radiation propagation of electromagnetic waves in free space. Figure 1.1 shows the various types of patch microstrip antenna.