

## ABSTRACT

Airport Surveillance Radar is a Radar used to monitor commercial aircraft in the airport environment is good when entering or leaving or just across the airport. In Radar systems, the antenna is one of the components that have functions to send and receive signals. Mikrostrip antenna with the shape of a Trident can produce wide *Bandwidth* by inserting each slot on the patch. The antenna array is one antenna that can be used for radar because emissivity characteristics produced larger and produce a narrow beam width thus its measured radiant direction directional and does not spread. The advantage in using antenna arrays compared with conventional antenna technology in radar systems, i.e. the antenna moves passively making it more efficient in terms of cost and power used for antenna rotators. Antennas is an important component in the radar technology system.

On the research of antenna arrangement  $4 \times 1$  designed that work in 2,8 GHz frequency with mikrostrip supply line techniques, the supply is carried by connecting the line supply with patch, which patch and supply line using the same material that was fabricated with etching technique. antenna array which is an antenna that the consist of isotropic antenna array that makes connection of direction diagram and phase from isotropic antenna itself.

Design and simulation process using antenna simulator software. Fabrication material uses FR-4 substrate material with a dielectric constant of 4.6 and has a thickness of 1.6 mm The  $4 \times 1$  mikrostrip array with additional techniques produces 7.2 dB *Gain*, axial ratio 40 dB, VSWR 1.177, return loss -21.766 dB Unidirectional radiation pattern and 100,9 MHz.

*Keywords: Antenna, Radar, Array*