

## **ABSTRACT**

*Indonesia is an island nation surrounded by the sea. This is necessary for supervision and security in the region Indonesian waters. The ability of the human eye as one of the important sense that it is not limited just over 100 meters. Equipment that can serve as the "eyes" but using the emission of radio waves known as Radar. Radar can replace the function of the human eye to monitor objects with distances. Maritime radar can detect the presence of another ship, weather / cloud so they can avoid the dangers that exist in front of the ship. Installation of this antenna is placed on top of the ship, assisted by the rotator so that radar can rotate 360°.*

*Antenna designed in this final project is the microstrip array antenna with rectangular patch on the center frequency of 9.4 GHz, the frequency range 9.37-9.43 GHz with a gain  $\geq 12$  dB and bandwidth of 60 MHz. In designing this antenna using Rogers RT5880 substrate with  $\epsilon_r$  2.2 and thickness 1.57 mm. For process of antenna simulation will be use CST Microwave Studio software.*

*Antenna that has been designed on the final project at frequency X-Band 9.24-9.60 GHz at VSWR  $\leq 2$  with a gain of 15.26 dB and bandwidth of 360 MHz. The microstrip array antenna acquires unidirectional radiation pattern and elliptical polarization*

*Keyword : Radar, microstrip antenna, array antenna*