

## ***Abstract***

*Currently, technological developments are progressing rapidly. Many fields have undergone modernization in order to support the rapid development of the times. Especially in the telecommunications sector, this field is not only limited to literal technological developments. However, it also develops in its users in other industrial and non-industrial sectors. One of them is the use of the telecommunications sector in the field of cleanliness. In this final project will discuss the use of telecommunications in the field of environmental cleanliness. Where the utilization is in the form of an antenna that will transmit the observations to an environment on the Citarum River. The antenna in this final project will use MIMO 2x2 technology as the main support for sending information. The 2x2 MIMO antenna with 4 array elements that has been designed will work at a frequency of 2.4 - 2.5 GHz where each element has a rectangular patch form, which consists of 4 array elements for each port. The antenna that has been designed has the following specifications, S parameter S11 - 31.822262 dB, S22 -32,808235 dB, S33 -32.664152 dB, and S44 -31.762546 dB on each port, S11 1.0526256, S22 1.046178, S33 1.047761, and S44 1.052456 on each port Bandwidth 121 MHz, Gain 7.348 dB, directional radiation pattern, and linear polarization.*

***Keywords: Antenna, MIMO, Bandwidth, River.***