

## ABSTRACT

*At this time in Indonesia very often natural disasters occur in several areas. One example of a disaster that often occurs is an earthquake. When there is an earthquake there will be a lot of problems. For example, communication access in the form of cellphones or mobile phones that still rely heavily on cellular operators as access does not get a signal when an earthquake occurs, this is due to the disconnection of the electricity network and the damaged RAN or Radio Access Network due to the disaster. Seeing these conditions, it is necessary to have a handheld radio or Handy Transceiver so that when a natural disaster occurs, residents can communicate with each other. However, the HT or Handy Transceiver has several drawbacks, namely the relatively small range of about 2-5 Km, with no barrier conditions, to overcome this a Cross Band Repeater is needed (XBR).*

*The HAM radio cross band repeater is an RPU or Transmit Radio by applying 2 different frequencies on the uplink and downlink sides. In this study, the design and realization of a HAM radio cross band repeater based on SDR and Raspberry Pi was carried out.*

*It is hoped that the creation of a cross band repeater based on SDR and Raspberry Pi can modernize the field of amateur radio communication, and can provide a system that is compact than conventional RPUs and developments that are easy for beginners to understand.*

**Keywords:** *Raspberry Pi, SDR, cross band repeater, HAM Radio.*