

ABSTRACT

The development of technology in Indonesia in the field of aerial photography is growing very rapidly. One of its functions is mapping on a large scale. There is very little geospatial information in Indonesia, so the Unmanned Aerial Vehicle (UAV) is a pretty good choice. The use of UAV cameras is replaced by using Radar to create more accurate results. One of them uses SAR radar imaging.

In the RADAR system, a signal generator is needed. This signal generator is a signal that can generate analog and digital chip signals. In the radar system there is a system called Frequency Modulated Continuous Wave (FMCW) and Continuous Wave (CW). Continuous Wave is an unmodulated signal that serves to measure the target speed and target angle position accurately. FMCW is signal that uses a triangular signal that uses an LFM system that function to measure distances with a modulating frequency that can always change.

In this final project, the design and realization of a dual mode signal generator will be carried out for use in UAV Radar applications using an S-band frequency of 2.4 Ghz, with a voltage of 2.59 V and a frequency of 2,434 Mhz in CW mode and a low voltage of 0.24 V and 2.73 V high voltage in FMCW mode with the lowest frequency value of 2,397.8 and the highest frequency of 2,438 Mhz using Arduino as a microcontroller.

Keywords : Radar System, Synthetic Aperture Radar, UAV, FMCW , CW, Microcontroller