

ABSTRACT

Blind Spot is a parameter that indicates problems in the automotive sector such as monitoring nearby vehicles. Blind Spot is not possible to be measured directly; the measurement needs to cover a large area. Non-contact sensor detection for nearby vehicles then becomes the right choice for automotive radar. The radar system began to be researched in the development of non-contact sensor technology for the Blind Spot case. The FMCW radar system was chosen because it has an advantage in detecting the distance from objects.

The problem of the shortage of the FMCW radar system in detecting Blind Spots needs to be overcome so that the system can be realized with a wide bandwidth. The FMCW radar system for detecting other vehicle objects is a potential alternative solution; However, it is necessary to carry out further detailed performance studies related to system parameters and the presence of noise amplitudes that may occur. Noise is a common problem that affects detection results and needs to be investigated in system development.

Radar modeling with computer simulation testing will be carried out in this thesis. The results of FMCW radar modeling with simulation using Matlab software show that the modeling can represent the FMCW system. In addition, the results obtained show that the distance of the object to the surrounding vehicles can be detected when the object has different distances and speeds. The FMCW radar system has a distance resolution of 5 cm and the farthest distance of the radar is 150 cm.

Keywords: *Blind Spot, Radar, FMCW.*