Aim and Objective

The aim of this project is to construct a beam steering device with different material in order to optimized performance:
- Precise, high resolution angle adjustment
- Great performance on efficiency
- Shorter response time

Objective:

One of the main objectives of this project is to extend the angle adjustment. Another important objective is to increase the response time of the device such that error can be reduced as the object is moving. Furthermore, finding the right type of liquid crystal and spacer for an ideal device is considered as another main objective as well. We spent considerable time on selecting and trying different combinations of liquid crystal and spacer. Overall, the objective of this project is to improve the existing technology and optimize the performance in order to make beam steering technology more valuable and extend the its use.

Methodology

Design Phase

Determine size of glass, type of LC used
Design the structure of the cell

Implementation

Production of Liquid Crystal Cell
Optimize the quality of the cell and choose the best one for testing

Testing

Test the LC cell by using FLC system
Parameter for test: Voltage, Frequency, Response time

Data collection and Analysis

Analyze the data by making graphs
Figure out the most optimized data for final use

Result

Angular distance improvement

Figure 1. The structure of V-shaped cell

Figure 2. External circuit applied to the cell

Figure 3. V-wedge cell

Figure 5. Two dimensional movement