**REAL TIME APPLICATION OF SIGNAL PROCESSING**

**R SIDDHARTH**

**2018504607**

**SUMMARY:**

This document provides a basic signal processing view of **“RADAR SIGNAL”** and their filtering methods to get the required information,inspired form the Air traffic radar in the movie **‘SULLY’.**

**THEORY:**

Radar signal processing is essential in a radar receiver as it is required to enhance and detect received echo signals that are immersed in noise and clutter.Received radar signal should be subjected to processing prior to the extraction of useful target information out of it so as to emphasize desired signal among other accompanying signals.

The performance of the radar is highly affected by the level of the interfering signals that share with the radar signal the same channel.In **air traffic control radar**, both fixed and very slow moving objects are considered as clutter and need to be filtered out.There are many radar signal processing techniques that are used to reduce the clutter, such as **DOPPLER PROCESSING TECHNIQUES,CONSTANT FALSE ALARM RATE** techniques that serve in the reduction of both interference and clutter problems.

**PULSE DOPPLER SIGNAL PROCESSING TECHNIQUES:**

This signal processing strategy is used in [pulse-Doppler radar](https://en.wikipedia.org/wiki/Pulse-Doppler_radar) and multi-mode radar, which can then be pointed into regions containing a large number of slow-moving reflectors without overwhelming computer software and operators.

Sampling causes frequency sidelobes to be produced adjacent to the true signal for an input that is a pure tone. Windowing suppresses sidelobes induced by the sampling process. **Dolph-Chebychev windowing** provides optimal processing sidelobe suppression.