Live Aircraft Tracking System using RTL-SDR

Objective:

◦ Capturing Automatic dependent surveillance -broadcast(ADS-B) signal using Register-transfer level - software defined radio(RTL-SDR) dongle and vertically polarized antenna.
◦Analysing the received ADS-B signal to get important information about the plane such as position,direction where it is moving etc.

Procedure:

◦ First we will connect our RTL-SDR dongle to PC/Raspberry pi through a device driver specifically built for RTL-SDR hardware [2].
◦ Once PC/Raspberry pi recognise the presence of the dongle then we will connect vertically polarized antenna(Here main task is to tune the antenna at frequency at which we can capture the ADS-B signal)[2].
◦ After tuning the antenna If ADS-B signal is strong(From strong signal I mean "The tracker system should be near to Aircraft") then we will successfully receive the actual(very less distorted) signal.
◦ We can conclude some important information from the values coming from this signal using some analysing tool such as Matlab,ADS-B scope and Virtual Radar server(From information I mean Position and direction of Aircraft) accurately[1].

References:

1) Akshay N, Shruthi R, Sushmitha K N, Vanitha R, Dr. Rekha K R, "Live Aircraft Detection with Mode-S Transponder Using RTL-SDR", Volume 7, Issue 5, May 2017 ISSN: 2277 128X International Journal of Advanced Research in Computer Science and Software Engineering.

2) Reza Pahlevy, Agus Dwi Prasetyo, Edwar, "Nanosatellite ADS-B Receiver Prototype for Commercial Aircraft Detection" in IEEE 2018 International Conference on Control, Electronics, Renewable Energy and Communications (ICCEREC), DOI: 10.1109/ICCEREC.2018.8712093.