Objective:
To conceptualise and develop an air traffic visualisation system to augment the cognitive capacity of ATCOs, and thereby increasing the effective capacity of the airspace.

Approach
- Investigate the feasibility of extending existing ATC systems to include 3D projection.
- Implement a user interface based primarily on the touch interface.

DESIGN LAYOUT
- 3D perspective should be easy to grasp for the human mind, since it mimics the natural vision of humans.
- However, the projection of a 3D space onto a 2D plane causes ‘foreshortening’ effect, which introduces inaccuracy and may lead to confusion.
- It was proposed to place both 2D and 3D views side by side to allow the ATCO to use whichever view that suits the situation.

APPLICATIONS
- Touch screen interface
- Flight information displayed on both 2D and 3D
- Chase Camera
- Loss of separation alert
- Altitude line

Results and Discussion
A pilot study was conducted where participants was subjected to ATM simulation using the 2D and 3D interface. General findings were:
- Tap-and-drag 3D viewpoint control garnered positive feedbacks as it lowers the learning curve for users who are already used to the 2D counterpart.
- Chase camera is an interesting feature to have although its use in an operational context may be limited.
- Prolonged use of the touchscreen may lead to muscle fatigue.

Conclusion:
- Demonstrated a novel air traffic visualisation system featuring a combination of 2D and 3D projections.
- Full touch interface
- Touch interface complements the 2D or 3D projection.