# Airplane

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| **Variables**   * Fuel – float   + Max Amount   + Min Amount * Altitude – float   + Max Altitude * Speed – float   + Min speed (take off speed)   + Max Speed * Landing requested - bool * Take Off Requested - bool * hasLanded – bool * needsToLand – bool – If the plane wants to land, this will be true, otherwise it will be false and the plane will want to leave * Requested to enter pattern - bool * Requested to leave pattern - bool * Taxi request – bool * Maximum Ascent rate * Desired Heading (if leaving) * Ability to change speed * Fuel burn rate * Turn Damping | **Functions -** self   * Change Fuel   + In use by flying   + Refueling on ground * Change Altitude   + New Altitude   + Rate of Change * Change speed   + In the air   + On the ground   + Landing   + Take Off * Request Landing * Request Take Off * Request to Enter Pattern * Request to Leave Pattern * Request to Taxi   **In Response to ATC**   * Permission to land granted   + Break away from holding pattern   + Line up with runway   + Lower altitude   + Slow speed   + Upon contacting runway, braking   + Taxi off of runway * Permission to take off   + Taxi from next to runway onto runway   + Accelerate to take off speed   + Climb to altitude * Permission to enter holding pattern   + Break from current heading   + Get into correct altitude   + Align with flight pattern * Permission to leave holding pattern   + Continue to fly until pointing at desired heading * Requested to change Altitude   + Change Altitude * Requested to change speed   + Change Speed * Permission to Taxi   + Navigate to end of runway |

# ATC