improve the efficiency, stability, reliability, and/or endurance of UAVs will expand their mission capabilities.

SUMMARY

[0005a] According to a first aspect of the invention, there is provided a method of controlling an unmanned aerial vehicle (UAV), the method comprising:

monitoring a sensed airspeed of the UAV;

obtaining a commanded speed for the UAV, the commanded speed representing a command to fly the UAV at a given speed relative to an airmass through which the UAV is flying or to Earth over which the UAV is flying; and

when the commanded speed is greater than the sensed airspeed, using the commanded speed in lieu of the sensed airspeed to inform flight control decisions of the UAV.

[0005b] According to a second aspect of the invention, there is provided at least one machine-accessible storage medium that provides instructions that, when executed by a control system of an unmanned aerial vehicle (UAV), will cause the UAV to perform operations comprising:

monitoring a sensed airspeed of the UAV;

obtaining a commanded speed for the UAV, the commanded speed representing a command to fly the UAV at a given speed relative to an airmass through which the UAV is flying or to Earth over which the UAV is flying; and

when the commanded speed is greater than the sensed airspeed, using the commanded speed in lieu of the sensed airspeed to inform flight control decisions of the UAV.

[0005c] According to a third aspect of the invention, there is provided an unmanned aerial vehicle (UAV), comprising:

a control surface to influence one or more of a pitch, a yaw, or a roll of the UAV;

a propulsion unit to propel the UAV;

a sensor to measure an airspeed of the UAV and in response output a sensed airspeed for the UAV; and

a control system coupled to the control surface, the propulsion unit, and the sensor, the control system including logic that when executed by the control system causes the UAV to perform operations including:

obtaining a commanded speed for the UAV, the commanded speed representing a command to fly the UAV at a given speed relative to an airmass through which the UAV is flying or to Earth over which the UAV is flying; and

when the commanded speed is greater than the sensed airspeed, using the commanded speed in lieu of the sensed airspeed to inform flight control decisions of the UAV, wherein the flight control decisions include at least one of scheduling thrust for the propulsion unit or allocating control effort for the control surface.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] Non-limiting and non-exhaustive embodiments of the invention are described with reference to the following figures, wherein like reference numerals refer to like parts throughout the various views unless otherwise specified. Not all instances of an element are necessarily labeled so as not to clutter the drawings where appropriate. The drawings are not necessarily to scale, emphasis instead being placed upon illustrating the principles being described.

[0007] FIG. 1 is a perspective view illustration of an unmanned aerial vehicle (UAV), in accordance with an embodiment of the disclosure.

[0008] FIG. 2 illustrates a UAV navigating a drone mission having hover and cruise segments along a flight path, in accordance with an embodiment of the disclosure.

[0009] FIG. 3 is a functional block diagram illustrating a control system for the UAV, in accordance with an embodiment of the disclosure.

[0010] FIG. 4A illustrates a UAV having a forward axis that is aligned with a commanded path, in accordance with an embodiment of the disclosure.

[0011] FIG. 4B illustrates a UAV having a forward axis that is misaligned with the commanded path, in accordance with an embodiment of the disclosure.

[0012] FIG. 5 is a flow chart illustrating a process for selectively substituting a commanded speed for a sensed airspeed to inform flight control decisions of the UAV, in accordance with an embodiment of the disclosure.

DETAILED DESCRIPTION

[0013] Embodiments of a system, apparatus, and method of operation for contingent use of a commanded speed in lieu of a sensed airspeed to inform flight control decisions are described herein. In the following description numerous specific details are set forth to provide a thorough understanding of the embodiments. One skilled in the relevant art will recognize, however, that the techniques described herein can be practiced without one or more of the specific details, or with other methods, components, materials, etc. In other instances, well-known structures,