WHAT IS CLAIMED IS:

1. A system, comprising:

at least one flight control computer (FCC) (113) associated with at least one unmanned aerial vehicle (UAV) (108), wherein the at least one FCC is configured to:

determine a direction of travel of the at least one UAV relative to the Sun;

adjust a UAV airspeed to a first airspeed if the determined direction of travel is towards the Sun; and

adjust the UAV airspeed to a second airspeed if the determined direction of travel is away the Sun;

wherein the first airspeed is greater than the second airspeed to maximize solar capture of a solar array (110) covering at least a portion of the UAV

wherein the solar array is in communication with a power tracker, the power tracker is configured to control voltage provided to a battery from the solar array, where the power tracker includes a termination voltage and provides a steady voltage to the battery to preserve battery life over the lifetime of the battery.

2. The system of claim 1, wherein the at least one FCC is further configured to:

adjust a UAV angle to a first angle relative to a horizontal plane if the determined direction of travel is towards the Sun; and

adjust the UAV angle to a second angle relative to the horizontal plane if the determined direction of travel is away the Sun;

wherein the UAV angle is relative to a plane of the UAV parallel to an upper surface (146) of the UAV, and wherein the first angle is less than the second angle to further maximize solar capture of the solar array covering at least a portion of the UAV.

3. The system of claim 2, wherein the first angle is substantially parallel to the horizontal plane.

4. The system of claim 2, wherein the second angle causes the UAV to tilts up such that the solar array is closer to perpendicular to the Sun’s rays.

5. The system of claim 1, wherein the solar array is disposed on an upper surface (146) of a wing panel (144) of the UAV.

6. The system of claim 1 further comprising:
at least one computing device (107) associated with a ground control station (104), wherein the at least one computing device is in communication with the at least one FCC.

7. The system of claim 6, wherein the at least one computing device is configured to:
transmit a communication signal to the at least one FCC.

8. The system of claim 7, wherein the transmitted communication signal includes a command for the at least one FCC to adjust the UAV airspeed based on the direction of travel of the at least one UAV relative to the Sun.

9. The system of claim 7, wherein the transmitted communication signal includes a command for the at least one FCC to adjust the UAV angle based on the direction of travel of the at least one UAV relative to the Sun.

10. The system of claim 1, wherein the at least one FCC is further configured to sustain flight of the UAV throughout the night via energy stored in one or more batteries when there is no solar capture of the solar array.

11. A method, comprising:
determining, by at least one flight control computer (FCC) (113) associated with at least one unmanned aerial vehicle (UAV) (108), a direction of travel of the at least one UAV relative to the Sun;
adjusting, by the at least one FCC, a UAV airspeed to a first airspeed if the determined direction of travel is towards the Sun; and
adjusting, by the at least one FCC, the UAV airspeed to a second airspeed if the determined direction of travel is away the Sun;
wherein the first airspeed is greater than the second airspeed to maximize solar capture of a solar array (110) covering at least a portion of the UAV,

wherein the solar array is in communication with a power tracker, the power tracker is configured to control voltage provided to a battery from the solar array, where the power tracker includes a termination voltage and provides a steady voltage to the battery to preserve battery life over the lifetime of the battery.

12. The method of claim 11, further comprising:

adjusting, by the at least one FCC, a UAV angle to a first angle relative to a horizontal plane if the determined direction of travel is towards the Sun; and

adjusting, by the at least one FCC, the UAV angle to a second angle relative to the horizontal plane if the determined direction of travel is away the Sun;

wherein the UAV angle is relative to a plane of the UAV parallel to an upper surface (146) of the UAV, and wherein the first angle is less than the second angle to further maximize solar capture of the solar array covering at least a portion of the UAV.

13. The method of claim 12, wherein the first angle is substantially parallel to the horizontal plane.

14. The method of claim 12, wherein the second angle causes the UAV to tilts up such that the solar array is closer to perpendicular to the Sun's rays.

15. The method of claim 11, wherein the solar array is disposed on an upper surface (146) of a wing panel (144) of the UAV.

16. The method of claim 11, wherein at least one computing device (107) associated with a ground control station (104) is in communication with the at least one FCC.

17. The method of claim 16 further comprising:

transmitting, by the at least one computing device, a communication signal to the at least one FCC.

18. The method of claim 17, wherein the transmitted communication signal includes a command for the at least one FCC to adjust the UAV airspeed based on the direction of travel of the at least one UAV relative to the Sun.

19. The method of claim 17, wherein the transmitted communication signal includes a command for the at least one FCC to adjust the UAV angle based on the direction of travel of the at least one UAV relative to the Sun.

20. The method of claim 11, further comprising:

sustaining, by the at least one FCC, a flight of the UAV throughout the night via energy stored in one or more batteries when there is no solar capture of the solar array.