CLAIMS

1. A method of controlling a wind turbine avoiding collision between at least one flying object and at least one wind turbine rotor blade, the method comprising controlling a rotational speed of the wind turbine rotor based on at least one measured position and at least one measured velocity of the at least one flying object.

2. Method according to claim 1, further comprising:
- predicting a probability distribution of at least one flight path of the at least one flying object from the at least one measured position and the at least one measured velocity of the at least one flying object.

3. Method according to claim 1 or claim 2, further comprising:
- estimating a probability of collision between the at least one flying object and the at least one rotor blade, and
- estimating a perturbation of the rotational speed of the wind turbine rotor in order to avoid collision between the at least one flying object and the at least one rotor blade.

4. Method according to claim 3, wherein the probability of collision is estimated based on an estimated intersection between the probability distribution of the at least one flight path with a swept surface of the at least one rotor blade as a function of position and time.

5. Method according to one of claims 1 - 4, further comprising:
- measuring the at least one position and the at least one velocity of the at least one flying object at a number of times t providing a number of updated measurements.

6. Method according to claim 5, further comprising:
- for each of the number of updated measurements estimating a perturbation of the rotational speed of the wind turbine rotor in order to avoid collision.

7. A collision prevention control module for a wind turbine, the collision prevention control module being adapted for controlling a speed of at least one rotor of the wind turbine based on a measured position and a measured velocity of the at least one flying object avoiding collision between at least one wind turbine rotor blade and the at least one flying object.

8. The control module according to claim 7, further being adapted for predicting a probability distribution of at least one flight path of the at least one flying object from the measured position and the measured velocity of the at least one flying object.

9. The control module according to claim 7 or claim 8, further being adapted for calculating a speed perturbation of the wind turbine rotor to avoid collision with the at least one flying object.

10. The control module according to one of claims 7-9, further being adapted for outputting the calculated speed perturbation to a speed error function of a control module of the wind turbine.

11. The control module according to one of claims 7-10, further comprising:
- an interface communicating with a generator converter of the wind turbine.

12. Wind turbine comprising:
- a collision prevention control module for controlling a speed of a wind turbine rotor based on a measured position and a measured velocity of the at least one flying object avoiding collision between at least one rotor blade of the wind turbine and the at least one flying object.

13. Wind turbine according to claim 12, wherein the collision prevention control module further comprising features according to at least one of claims 8-11.

14. Wind turbine according to claim 12 or claim 13, further comprising at least one sensor for measuring the position and measuring the velocity of the at least one flying object.

15. A collision prevention system for a wind turbine, the collision prevention system comprising:
- at least one sensor for measuring a position and measuring a velocity of the at least one flying object; and
- a collision prevention control module controlling a speed of at least one rotor of the wind turbine based on a measured position and a measured velocity of the at least one flying object avoiding collision between at least one rotor blade of the wind turbine and the at least one flying object.

16. The collision prevention system according to claim 14 or 15, wherein the at least one sensor (6, 7, 8, 9) further comprising at least one of:
- a sensor (6) arranged at a cone of the wind turbine,
- a sensor (7) arranged on a housing of the wind turbine,
- a sensor (8) arranged on a tower of the wind turbine; and
- a sensor (9) arranged on the ground.

17. The collision prevention system according to one of claims 14, 15 or 16, wherein the at least one sensor (6, 7, 8, 9) is an active sensor.

18. The collision prevention system according to claim 17, wherein the at least one active sensor (6, 7, 8, 9) is a radar or a lidar, but preferably an ultra wide-band radar.

19. The collision prevention system according to one of claims 14, 15 or 16, wherein the at least one sensor (6, 7, 8, 9) is a passive sensor.

20. The collision prevention system according to claim 19, wherein the at least one passive sensor (6, 7, 8, 9) is at least one of a visual sensor or a thermal imaging camera.

21. The collision prevention system according to one of claims 15-20, wherein the at least one flying object is at least one of a bird, bat, or remotely-piloted aircraft.

22. The method according to one of claims 1-6, wherein the at least one flying object is at least one of a bird, bat, or remotely-piloted aircraft.

23. The collision prevention control module according to one of claims 7-11, wherein the at least one flying object is at least one of a bird, bat, or remotely-piloted aircraft.

23. The wind turbine according to one of claims 8-14, wherein the at least one flying object is at least one of a bird, bat, or remotely-piloted aircraft.