

Claims

1. An augmented vision system (1) comprising:
a displaying device (3) comprising:
a fixing element (31) for coupling the displaying device (3) to a head-mountable component (90) configured to be positioned in front of a face (102) of a user (100), and
a display body (32) being coupled to said fixing element (31) by means of a pivoting link (321, 322, 323) providing a rotation of the display body with respect to the fixing element around a rotational axis (38);
wherein the display body (32) comprises:
a display (33) configured to display a thermal data and/or a thermal image (331) provided by a thermal sensing device (2); and
a first surface portion (325) configured to enter in contact with a forehead of a user, when said head-mountable component (90) is positioned in front of the face of the user, so as to rotate the display body (32) to a predefined angular positioning (381) around the rotational axis (38).
2. The augmented vision system according to claim 1, wherein said pivoting link provide a free rotation of the display body of at least 5° around the rotational axis (38).
3. The augmented vision system according to any one of claims 1 and 2, wherein the displaying device (3) comprises an adjusting mechanism (311, 321) providing a relative translation of said first surface portion (325) with respect to the fixing element (31).
4. The augmented vision system according to claim 3, wherein said adjusting mechanism comprises a slide link (311, 321) providing a relative translation of the display body (32) with respect to the fixing element (31) along a translation axis (39) perpendicular to the rotational axis (38).

5. The augmented vision system according to claim 4, wherein the slide link (311,321) is configured to indicate a plurality of discrete positions along the translation axis (39);

preferably the slide link (311,321) being configured to retain the display body (32) when positioned at one of said plurality of discrete positions with respect to the fixing element (31).

6. The augmented vision system according to any one of claims 1 to 5, the displaying device (3) being configured to rotate the display body (32) for pushing the first surface portion (325) against the forehead of the user, when the head-mountable component (90) is positioned in the face of the user.

7. The augmented vision system according to claim 6, wherein the displaying device (3) comprising an elastic element operating between the display body (32) and the fixing element (31).

8. The augmented vision system according to claim 6, wherein the display body (32) comprises a second surface portion (326) configured to enter in contact with a portion of the fixing element (31) and/or of the head-mountable component (90), when the head-mountable component (90) is positioned in front of the face of the user; preferably the display body (32) comprising a resilient portion operating between the first surface portion (325) and the second surface (326).

9. The augmented vision system according to any one of claims 1 to 7, wherein the rotational axis (38) is substantially parallel to an imaginary line (103) passing through the eyes (101) of the user when said head-mountable component (90) is positioned in front of the face of the user.

10. The augmented vision system according to any one of claims 1 to 12, wherein the displaying device (32) is detachable from the fixing element (31), preferably by means of the slide link (311, 321).

11. The augmented vision system according to any one of claims 1 to 10, wherein the fixing element (31) is removably fastened to the head-mountable component (90).

12. The head covering according to the claim 11, wherein the fixing element comprising at least a resilient portion configured to provide an elastic force operating on one or more distinct portions of the head-mountable component (90) so as to removably retain the fixing element (31) to the head-mountable component (90).

13. The augmented vision system according to any one of claims 1 to 12, wherein the head-mountable component (90) is configured to be pushed against the face (102) of a user (100).

14. The augmented vision system according to any one of claims 1 to 13, wherein the display is a see-through-display (33).

15. The augmented vision system according to any one of claims 1 to 14, wherein the thermal sensing device (2) is a head-mountable thermal sensing device (2); preferably the thermal sensing device is configured to provide thermal data and/or thermal images to the display by means of a wireless link (4).

16. The augmented vision system according to any one of claims 1 to 15, the thermal sensing device (2) comprising:
a head-mountable base (21);
a sensing body (22) coupled to the base and comprising a thermal camera (221) for sensing temperatures of an object along a sensing orientation (223); and
a camera adjusting mechanism for adjusting an angular positioning (a) of the sensing orientation (223) of the thermal camera (221) with respect to the head-mountable base (21), preferably around a rotating axis (24).

17. The augmented vision system according to the claim 16, wherein the thermal camera (22) is detachable coupled to the head-mountable base.

18. The augmented vision system according to any one of claims 1 to 17, wherein the head-mountable thermal sensing device (2) is fastened to a head-covering (9), preferably by means of the head-mountable base (21).

19. The head covering according to the claim 18, wherein the head-mountable component (90) is coupled with the head-covering (9), preferably by means of a resilient element so as to provide an elastic force pushing the head-mountable component (90) against the face (102) of a user (100).

20. The head covering according to any one of claims 18 and 19, the head covering (9) being a protective head covering, notably a firefighter helmet (9), a soldier helmet, a policeman helmet, a rescuer helmet, a cyclist helmet or a driver helmet.

21. The augmented vision system according to any one of claims 1 to 20, wherein the head-mountable component (90) is an eyewear, a mask, a face shield or a visor (90) of the head covering (9).

22. A method for wearing an augmented vision system according to any one of claims 1 to 21, the method comprising steps of:

fastening a fixing element (31) of a displaying device (3) to a head-mountable component (90) configured to be positioned in front of a face (102) of a user (100);

rotatably coupling a display body (32) of the displaying device (3) to said fixing element (31); and

rotating the display body (32) around a rotational axis (38) to a given angular position with respect to the fixing element (31) by positioning the head-mountable component (90) in front of the face (102) of the user (100).

23. The method according to claim 22, wherein coupling the display body comprises a step of:
positioning the display body (32) with respect to the fixing element (31) along a translation axis (39) perpendicular to the rotational axis (38) of the display body (32).

24. The method according to any one of claims 22 and 23, the method comprising steps of:
fastening a thermal camera (221) to a head covering (9);
when the head-mountable component (90) is positioned in the front of the face (102) of the user (100), adjusting a sensing orientation (223) of the thermal camera (221) with respect to the head covering (9).