

edges with respect to the center of the three-dimensional geometric shape and a mid-point of the front lens, and

configuring each edge in the plurality of edges to be adjacent to an adjacent edge in an adjacent front lens, and

the step of constraining the plurality of chief rays that strike along the field of view comprises matching an angle of incidence of each of the plurality of chief rays along the edges with the edge surface angles along the adjacent edge.

6. The method of claim 5, wherein the three-dimensional shape is a dodecahedron, and the front lens in each of the discrete imaging systems is configured to have a pentagon shape wherein the edges of the pentagon shape have a length “a”, the diameter of a circle circumscribing the pentagon shape is equal to $a/\sin(36^\circ) = 1.7013a$, a radius of a sphere inscribed within the dodecahedron is equal to:

$$r_i = a \frac{1}{2} \sqrt{\frac{5}{2} + \frac{11}{10} \sqrt{5}} \approx 1.113516364 \cdot a$$

and a distance from a center of the dodecahedron to a mid-point on the edge of the front lens equal to

$$r_m = a \frac{1}{4} (3 + \sqrt{5}) \approx 1.309016994 \cdot a$$

7. A multi-camera panoramic imaging system, comprising:

a plurality of discrete imaging systems characterized by a field of view and disposed in a side-by-side array, wherein the field of view of each of the discrete imaging systems is conjoined with but does not overlap the field of view of each adjacent discrete imaging system, each of the discrete imaging systems comprising a front lens configured to constrain a plurality of chief rays that strike along an edge of the field of view of every one of the discrete imaging systems to be substantially parallel to another plurality of chief rays that strike

along an adjacent edge of the field of view of an immediately adjacent one of the discrete imaging systems such that all of the chief rays appear to converge to a common point when viewed from object space.

8. The multi-camera panoramic imaging system of claim 7, wherein at least 50% of the chief rays that strike along adjacent edges of the field of view of adjacent discrete imaging systems deviate from parallel by twenty degrees or less.

9. The multi-camera panoramic imaging system of claim 7, wherein the side-by-side array forms a three-dimensional geometric shape having a center, the front lens in each of the discrete imaging systems has a plurality of edges which define a plurality of edge surface angles at points along the edges with respect to the center of the three-dimensional geometric shape and a mid-point of the front lens, each edge in the plurality of edges being configured adjacent to an adjacent edge in an adjacent front lens, and the plurality of edge surface angles along the edges in each of the plurality of edges matching an angle of incidence of each of the plurality of chief rays along the adjacent edge in the adjacent front lens.

10. The multi-camera panoramic imaging system of claim 9, wherein the three-dimensional shape is a dodecahedron, and the front lens in each of the discrete imaging systems is configured to have a pentagon shape wherein the edges of the pentagon shape have a length “a”, the diameter of a circle circumscribing the pentagon shape is equal to $a/\sin(36^\circ) = 1.7013a$, a radius of a sphere inscribed within the dodecahedron is equal to:

$$r_i = a \frac{1}{2} \sqrt{\frac{5}{2} + \frac{11}{10} \sqrt{5}} \approx 1.113516364 \cdot a$$

and a distance from a center of the dodecahedron to a mid-point on the edge of the front lens equal to

$$r_m = a \frac{1}{4} (3 + \sqrt{5}) \approx 1.309016994 \cdot a$$

11. The multi-camera panoramic imaging system of claim 7, wherein a front lens of each of the discrete imaging systems is a portion of a single, contiguous freeform optic.

12. The multi-camera panoramic imaging system of claim 7, wherein each image sensor is a wavefront sensor.

13. The multi-camera panoramic imaging system of claim 7, wherein each of the discrete imaging systems has a curved image plane so as to match a distortion and Petzval Curvature of the imaging system.

14. The multi-camera panoramic imaging system of claim 7, wherein each of the discrete imaging systems includes an image sensor, further wherein the common point lies behind the image sensor.