CLAIMS

1. A method for manufacturing opto-electronic modules, said method comprising:

providing a substrate wafer on which a multitude of detecting members are arranged;

providing an optics wafer, said optics wafer comprising a multitude of solid transparent portions transparent for light generally detectable by said detecting members and blocking portions composed of a polymer material for substantially attenuating or blocking incident infrared light generally detectable by said detecting members, wherein the blocking portions of the optics wafer and the transparent portions of the optics wafer have substantially the same dimension along a vertical direction, and wherein upper and lower surfaces of the transparent portions are co-planar, respectively, with upper and lower surfaces of the blocking portions;

subsequently applying an optical element to at least one of the upper or lower surface of each of the solid transparent portions; and

preparing a wafer stack comprising said substrate wafer, said optics wafer, and a spacer wafer disposed between the optics wafer and the substrate wafer, wherein the spacer wafer is composed of a polymer material which substantially attenuates or blocks infrared light generally detectable by said detecting members,

wherein the vertical direction is parallel to a direction in which the wafers are stacked.

2. The method according to claim 1, wherein preparing said wafer stack is carried out such that said detecting members are arranged between said substrate wafer and said optics wafer.

3. The method according to claim 1, wherein providing a substrate wafer on which a multitude of detecting members are arranged comprises placing said detecting members on said substrate wafer by pick-and-place.

4. The method according to claim 1, wherein each of said multitude of transparent portions has thereon at least one passive optical component comprising at least one optical structure each.

5. The method according to claim 4, further comprising manufacturing said at least one passive optical component by replication.

6. The method according to claim 1, wherein a multitude of emission members for emitting light generally detectable by said detecting members is arranged on said substrate wafer such that a multitude of neighboring emission members and detecting members are present on said substrate wafer.

7. The method according to claim 6, wherein a first plurality of passive optical components is associated with one of said emission members and another plurality of passive optical components is associated with one of said detecting members.

8. The method according to claim 6,

wherein said spacer wafer is arranged such that it reduces optical cross-talk between said emission members and said detecting members.

9. The method according to claim 1, comprising obtaining said spacer wafer by means of a replication process.

10. The method according claim 1, wherein said opto-electronic modules are proximity sensors.

11. The method according to claim 1, further comprising:

providing said substrate wafer with solder balls on that side of the substrate wafer which is opposed to that side of the substrate wafer on which said detecting members are arranged.

12. The method according to claim 1, further comprising separating said wafer stack into a multitude of separate modules each comprising:

a portion of said substrate wafer;

at least one of said detecting members;

at least one of said transparent portions;

at least one of said blocking portions.

13. The method according to claim 12 wherein, after separating the wafer stack into separate modules, the at least one transparent portion of a particular one of the modules and the at least one blocking portion of the particular one of the modules form, together in combination, a solid rectangular-prism shape.

14. The method according to claim 1, further comprising separating said wafer stack into a multitude of separate modules each comprising:

a portion of said substrate wafer;

at least one of said detecting members;

a portion of said spacer wafer;

at least one of said transparent portions;

at least one of said blocking portions.

15. The method according to claim 1, further comprising:

providing a baffle wafer comprising a multitude of transparent regions.

16. The method according to claim 1, further comprising:

providing a baffle wafer arranged next to said optics wafer on that side of said optics wafer facing away from said substrate wafer;

and wherein preparing said wafer stack is carried out such that said detecting members are arranged between said substrate wafer and said optics wafer, and wherein said optics wafer is arranged between said baffle wafer and said substrate wafer.

17. The method according to claim 1, wherein said substrate wafer substantially is a printed circuit board assembly.

18. The method according to claim 1 wherein each of the transparent portions of the optics wafer has a respective first side that is a same first distance from the substrate wafer as a first side of the blocking portions of the optics wafer, and wherein each of the transparent portions of the optics wafer has a respective second side that is a same second distance from the substrate as a second side of the least one blocking portion of the optics wafer.

19. The method according to claim 1 wherein the blocking portions are composed of an epoxy resin.

20. The method of claim 1 wherein applying an optical element to at least one of the upper or lower surface of each of the solid transparent portions includes using an embossing technique to apply each of the optical elements to a respective one of the solid transparent portions such that each of the optical elements is separate from all other ones of the optical elements.