

- [0097] 12. To determine the position, velocity or size of an occupant in a motor vehicle and to utilize this information to control the rate of gas generation, or the amount of gas generated, by an airbag inflator system or otherwise control the flow of gas into or out of an airbag.
- [0098] 13. To determine the fact that an occupant is not restrained by a seatbelt and therefore to modify the characteristics of the airbag system. This determination can be done either by monitoring the position of the occupant or through the use of a resonating device placed on the shoulder belt portion of the seatbelt.
- [0099] 14. To determine the presence and/or position of rear seated occupants in the vehicle and to use this information to affect the operation of a rear seat protection airbag for frontal, rear or side impacts, or rollovers.
- [0100] 15. To determine the presence and/or position of occupants relative to the side impact airbag systems and to use this information to affect the operation of a side impact protection airbag system.
- [0101] 16. To determine the openness of a vehicle window and to use that information to affect another vehicle system.
- [0102] 17. To determine the presence of an occupant's hand or other object in the path of a closing window and to affect the window closing system.
- [0103] 18. To remotely determine the fact that a vehicle door is not tightly closed using an illumination transmitting and receiving system such as one employing electromagnetic or acoustic waves.
- [0104] 19. To determine the position of the shoulder of a vehicle occupant and to use that information to control the seatbelt anchorage point.
- [0105] 20. To determine the position of the rear of an occupant's head and to use that information to control the position of the headrest.
- [0106] 21. To recognize the presence of a rear facing child seat on a particular seat of a motor vehicle and to use this information to affect the operation of another vehicle system such as the airbag system
- [0107] 22. To determine the total number of occupants of a vehicle and in the event of an accident to transmit that information, as well as other information such as the condition of the occupants before, during and/or after a crash, to a receiver remote from the vehicle, such information may include images.
- [0108] 23. To affect the vehicle heating, ventilation and air conditioning system based on a determination of the number, size and location of various occupants or other objects within the vehicle passenger compartment.
- [0109] 24. To determine the temperature of an occupant based on infrared radiation coming from that occupant and to use that information to control the heating, ventilation and air conditioning system.
- [0110] 25. To provide a vehicle interior monitoring system for determining the location of occupants within the vehicle and to include within the same system various electronics for controlling an airbag system.
- [0111] 26. To determine the approximate location of the eyes of a driver and to use that information to control the position of the rear view mirrors of the vehicle and/or adjust the seat.
- [0112] 27. To monitor the position of the head and/or other parts of the vehicle driver and determine whether the driver is falling asleep or otherwise impaired and likely to lose control of the vehicle and to use that information to affect another vehicle system.
- [0113] 28. To monitor the position of the eyes or eyelids of the vehicle driver and determine whether the driver is falling asleep or otherwise impaired and likely to lose control of the vehicle, or is unconscious after an accident, and to use that information to affect another vehicle system.
- [0114] 29. To determine the location of the eyes of a vehicle occupant and/or the direction of a light source such as the headlights of an oncoming vehicle or the sun and to cause a filter to be placed in such a manner as to reduce the intensity of the light striking the eyes of the occupant.
- [0115] 30. To determine the location of the eyes of a vehicle occupant and/or the direction of a light source such as the headlights of a rear approaching vehicle or the sun and to cause a filter to be placed in such a manner as to reduce the intensity of the light reflected from the rear view mirrors and striking the eyes of the occupant.
- [0116] 31. To recognize a particular driver based on such factors as facial characteristics, physical appearance or other attributes and to use this information to control another vehicle system such as the vehicle ignition, a security system, seat adjustment, or maximum permitted vehicle velocity, among others.
- [0117] 32. To provide an occupant sensor which determines the presence and health state of any occupants in a vehicle and, optionally, to send this information by telematics to one or more remote sites. The presence of the occupants may be determined using an animal life or heart beat sensors
- [0118] 33. To provide an occupant sensor which determines whether any occupants of the vehicle are breathing or breathing with difficulty by analyzing the occupant's motion and, optionally, to send this information by telematics to one or more remote sites.
- [0119] 34. To provide an occupant sensor which determines whether any occupants of the vehicle are breathing by analyzing the chemical composition of the air/gas in the vehicle and, optionally, to send this information by telematics to one or more remote sites.