CLAIMS

1.- A piece of detection equipment (20) for a secondary rail detection system (SSD) of an automatic railroad traffic control architecture on a railroad track (12), said railroad track (12) being subdivided into a plurality of zones (14A; 14B; 14C), said equipment being associated with at least one particular zone (14A; 14B; 14C), and being able to generate release information for said particular zone (14A; 14B; 14C) that by a vehicle (16) traveling on the track (12), from at least one measurement signal received from at least one sensor (28A; 28B) of the secondary detection system connected to said equipment (20);

characterized in that said equipment (20) is a computer (40), comprising:

- a hardware layer (42), comprising:
  - computation means (51);
  - storage means (53);
  - an input interface (55) comprising: a connector (57), to connect said at least one sensor (28A; 28B) to said equipment, and digitization means (59), to produce a digital signal from the measurement signal delivered by said at least one sensor;
  - a communication board (61), to connect the equipment (20) to a communication network (22) and allow direct two-way communication between the equipment (20) and an interlocking system (19) of a signaling system to which said automatic traffic control architecture belongs, said interlocking system being connected to the communication network (22);
- a hardware layer (44), comprising:
  - application software (63), able to acquire the digital signal of the entry interface and generate release information for said particular zone (14A; 14B; 14C);
  - pilot software (65), able to generate a data message (MD) from said release information of said particular zone (14A; 14B; 14C), the data message (MD) respecting a secure communication protocol, and to pass the data message (MD) to the communication board (61) so that it sends that data message (MD) over the communication network (22) to the interlocking system (19);

and in that said sensor of the secondary detection system (SSD) a track circuit sensor or an axle sensor, said connector (57) and said application software (63) being adapted to the selected sensor.

2.- The equipment (20) according to claim 1, characterized in that said communication board (61) is a communication board of the ETHERNET type.

3.- The equipment (20) according to claim 1 or 2, characterized in that said secure communication protocol is the protocol defined by standard $FSFB_2$.

4.- The equipment (20) according to any one of claims 1 to 3, characterized in that said pilot software (65) is able to command a reset of the release information for said particular zone (14A; 14B; 14C) from a reset message (MR) coming from said interlocking system (19) and received by said communication board (61).

5.- A signalization system for a railroad track (12), comprising:

- a communication network (22),
- an interlocking system (19) to control the travel of the vehicles (16) traveling on the railroad track (12); and

an automatic control architecture (10) for the railroad traffic on the track, the architecture being of the type based on control of the vehicles (16) by onboard computers (26), said railroad track (12) being subdivided into a plurality of zones (14A; 14B; 14C), said architecture comprising:

- a primary detection system (SPD), to detect the presence of a vehicle (16) on at least one particular zone (14A; 14B; 14C) from a determination of the position of the vehicle (16) done by a computer (26) onboard said vehicle (16), the primary detection system (SPD) being able to generate a first piece of release information; and
- a secondary track detection system (SSD), to detect the presence of a vehicle (16) on at least one particular zone (14A; 14B; 14C) of the track (12), comprising a sensor situated along the track, associated with said particular zone (14A; 14B; 14C) and able to generate a measurement signal, said secondary detection system (SSD) being able to generate a second piece of release information and communicate it to the interlocking system (19), the secondary detection system (SSD) being independent from the primary detection system (SPD),

said system being characterized in that the secondary detection system (SSD) comprises a piece of equipment (20) according to any one of claims 1 to 4, the entry

interface (55) of which is connected to said at least one sensor (28A; 28B) and the communication board (61) of which is directly connected to the interlocking system, via the communication network (22).

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CLAIMS

1.- A piece of detection equipment (20) for a secondary rail detection system (SSD) of an automatic railroad traffic control architecture on a railroad track (12), said railroad track (12) being subdivided into a plurality of zones (14A; 14B; 14C), said equipment being associated with at least one particular zone (14A; 14B; 14C), and being able to generate release information for said particular zone (14A; 14B; 14C) that by a vehicle (16) traveling on the track (12), from at least one measurement signal received from at least one sensor (28A; 28B) of the secondary detection system connected to said equipment (20);

characterized in that said equipment (20) is a computer (40), comprising:

- a hardware layer (42), comprising:
    - computation means (51);
    - storage means (53);
    - an input interface (55) comprising: a connector (57), to connect said at least one sensor (28A; 28B) to said equipment, and digitization means (59), to produce a digital signal from the measurement signal delivered by said at least one sensor;
    - a communication board (61), to connect the equipment (20) to a communication network (22) and allow direct two-way communication between the equipment (20) and an interlocking system (19) of a signaling system to which said automatic traffic control architecture belongs, said interlocking system being connected to the communication network (22);
- a hardware layer (44), comprising:
    - application software (63), able to acquire the digital signal of the entry interface and generate release information for said particular zone (14A; 148; 14C);
    - pilot software (65), able to generate a data message (MD) from said release information of said particular zone (14A; 14B; 14C), the data message (MD) respecting a secure communication protocol, and to pass the data message (MD) to the communication board (61) so that it sends that data message (MD) over the communication network (22) to the interlocking system (19);

in that said sensor of the secondary detection system (SSD) a track circuit sensor or an axle sensor, said connector (57) and said application software (63) being adapted to the selected sensor;

and in that said secure communication protocol is the protocol defined by standard $FSFB_2$.

2.- The equipment (20) according to claim 1, characterized in that said communication board (61) is a communication board of the ETHERNET type.

3.- The equipment (20) according to claim 1 or 2, characterized in that said pilot software (65) is able to command a reset of the release information for said particular zone (14A; 14B; 14C) from a reset message (MR) coming from said interlocking system (19) and received by said communication board (61).

4.- A signalization system for a railroad track (12), comprising:

- a communication network (22),

- an interlocking system (19) to control the travel of the vehicles (16) traveling on the railroad track (12); and

an automatic control architecture (10) for the railroad traffic on the track, the architecture being of the type based on control of the vehicles (16) by onboard computers (26), said railroad track (12) being subdivided into a plurality of zones (14A; 14B; 14C), said architecture comprising:

- a primary detection system (SPD), to detect the presence of a vehicle (16) on at least one particular zone (14A; 14B; 14C) from a determination of the position of the vehicle (16) done by a computer (26) onboard said vehicle (16), the primary detection system (SPD) being able to generate a first piece of release information; and

- a secondary track detection system (SSD), to detect the presence of a vehicle (16) on at least one particular zone (14A; 14B; 14C) of the track (12), comprising a sensor situated along the track, associated with said particular zone (14A; 14B; 14C) and able to generate a measurement signal, said secondary detection system (SSD) being able to generate a second piece of release information and communicate it to the interlocking system (19), the secondary detection system (SSD) being independent from the primary detection system (SPD),

said system being characterized in that the secondary detection system (SSD) comprises a piece of equipment (20) according to any one of claims 1 to 3, the entry

interface (55) of which is connected to said at least one sensor (28A; 28B) and the communication board (61) of which is directly connected to the interlocking system, via the communication network (22).