Easy Logic. The algorithm to check the headlights and seat belt
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Task setting

As a simple example of creating an algorithm, consider the following situation: to control the driver’s actions, at the beginning of the movement (in case the speed is more than 10 kph) it is necessary to check whether the driver is driving on dimmed headlights and has fastened the seat belt; in case of violation, the dispatcher should receive an SMS message about this event.

Connection scheme

To implement the functionality described above, it is required to perform physical connection of controlled circuits to the Galileosky tracking device inputs in accordance with the scheme (Picture 1).
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Algorithm Creation

Algorithm creation starts with entering its name. To do this, click with the left mouse button on the word "Title" and enter a name, e.g. "Control" and click Enter.

The tracking device should monitor implementation of our terms constantly, and not because of any external events, so as the initial event you need to select event "Device start" (Pic. 2) by dragging the event on the main working field when you press the left mouse button.

Next, you need to check whether the car is moving, for that you need to drag the "Condition" action on the main working field. Condition is created with double-clicking the left mouse button. Next, select the conditions of checking: select SPEED in the parameters list as the left operand, enter 10 as the right operand (it is 10 kph, because condition checking should be done on motion, thus, we need to exclude any speed emissions if the vehicle is not moving; besides, no notifications should be sent when the car is moving at a low speed, for example, at the garage), select symbol ">" as the condition (Pic. 3)

If the condition check showed that the car is moving, then the next step should be to see if the headlights are on. To do this, as it has been described above, drag another action of "Condition". From the output "Right" of the first condition, pull the line to the block below of the second condition. Enter validation parameters of the second condition (Pic. 4). According to the initial condition, the wire to turn headlights on is connected to input 1. The value of 6000 (6 V for the tracking device) guarantees that the alarm will cut off any voltage bumps on the inputs and only activates at a steady pressing the button for headlights control.
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If the voltage at input 1 is less than 6000 mV (lights not included), the driver has committed a violation and it must notified about to the dispatcher via SMS (Pic. 5). To do this, drag the action "Send SMS" and connect the output "False" of the condition with the new action. Enter parameters for SMS message sending by using the phone number and a text of the message.

Come back to the condition of headlights checking. If there is voltage on input 1 (headlights are on), then check if the seat belt is fastened, i.e. there should be voltage on input 2. To check that, drag another "Condition" block and enter parameters. Again, analyze the results. If there is no voltage on input 2 (seat belt is not fastened), then according to the task, an SMS notification should be sent to the dispatcher. Block "Send SMS" is on the working field already, that's why connect "False" output of the seat belt checking condition with the SMS block (Pic. 7).
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If there is voltage on input 2, then the driver accomplished all the conditions for safe driving, the algorithm is finished. For that, select "Finish" block from the events block and drag in on to the working field. Connect the "Right" output of the condition of seat belt checking to the event (Pic. 8).

If we look at the first condition of the algorithm that checks if the vehicle is moving, we will see that it is not specified, where the "False" output leads (speed is less than 10 kph). As in this case there is no need to check anything, the algorithm is finished at this point, so goes to "Finish" block. Similarly, connect the output of "Send SMS" block with the "Finish" block if there is any violation at the conditions, as the notification has been already sent to the dispatcher (Pic. 9).
Running the algorithm

The algorithm is saved in any directory on your computer. To do this, click "Save" and select the directory to save.

To get started, you need to run the algorithm. To do this, connect the tracking device to the computer and wait for it to determine the "Configurator". Next, click "USB upload". If no errors occur, the algorithm will be loaded and start working. (Pic. 10)
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The algorithm is completed, but if you carefully evaluate its work, you can see that the algorithm is started only once with the tracking device start, and at this point, the vehicle could be stopped, so in this case, the algorithm does not operate properly.

To solve this problem, you can organize the algorithm operation in a loop, so that after the program starts, the algorithm operates continuously. To do this, remove "Finish" event, and connect all the lines, leading to it, with the initial condition checking the vehicle movement for re-verification.

Attention! The tracking device will execute the algorithm constantly, so to prevent the microprocessor overload by the algorithm implementation, set the block-action "Delay" when using loop (Pic. 11).
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Pic. 11
Block scheme of the algorithm in a loop
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Algorithm refinement

If you carefully analyse the functioning of the algorithm, you can note, that in this algorithm, in case of persistent violations by the driver of the initial conditions, SMS will be sent to the dispatcher every second, as the algorithm runs and checks conditions constantly. In order to avoid this, in the scheme of the algorithm it is necessary to use the flag of SMS sending to the dispatcher to perform the message sending only once after the engine power up. Condition of the flag reset to the initial value will turn off the ignition (0 input voltage should be less than 6 V). Enter the global variable "Flag" with the initial value 0. In case of the driver's violation of conditions after SMS sending, the Flag will change the value to 1 and will prevent re-sending SMS before the ignition is off. In this case, the algorithm looks as follows (Pic. 12):

To get started, the updated algorithm is run repeatedly. To do this, connect the tracking device to the computer and wait for it to determine in the "Configurator," then click the "USB upload".

Custom algorithm to check headlights and seat belts is completed and ready for work.