RAILWAY CROSSINGS SAFETY

MOTTO: NO ACCIDENTS AT THE RAIL CROSSINGS
(NO clashes of vehicles and pedestrians with rail vehicles where „Advance Signaling“ for vehicles and pedestrian tournaments are in operation)

Thanks to this newly developed „Advance Signaling“ and turnstiles, railway crossings accidents are unnecessary

100% accident prevention at crossings has been verified by the tests in the Czech Republic and submitted to the Railway Infrastructure Commission. Its participants have recommended further installations of Pilot projects. Deploying of Advance Signaling not only in Europe, but all over the world will save tens of thousands lives each year.
ADVANCE SIGNALING EQUIPMENT
APPLICABLE BOTH FOR CROSSINGS WITH AND WITHOUT BARRIERS

BASIC IDEA: STOP THE VEHICLES BEFORE THE CROSSING

After the start of railway warning signals, the vehicles stop in red traffic light. The vehicles are released when the barriers are getting down, so that there is NO DELAY, because they are waiting for lifting of the railway barriers anyway. This prevents the entry of the vehicles to the railway crossing before lowering the railway barriers and thus the accidents at the crossings.

Sensor 1 captures alert 3 and changes the color of traffic light 2 to red. The vehicles are stopped at the traffic light, i.e. before crossing.
ADVANCED SIGNALING EQUIPMENT
ADDITIONAL BARRIER: 100% OF VEHICLES STOPS BEFORE CROSSING

According to the short-term tests, 100% of vehicles stops before the crossing. Only in the case that vehicles passes the red light, the additional barrier is stopping these vehicles. The barrier is triggered only for the vehicle that has passed through the red.

Decrease of the allowed speed to the 30 km/h attracts attention of the driver in front of the traffic lights.
ADVANTAGES OF ADVANCE SIGNALING

• PREVENTS 100% OF ACCIDENTS AT THE RAILWAY CROSSINGS WITH OR WITHOUT BARRIERS

• COPIES RAILWAY SIGNALS WITHOUT INTERCONNECTION; DOES NOT INTERFERE THE RAILWAY PROTECTION ZONE - NO NEED FOR COMPLICATED APPROVAL PROCEDURES, SO THAT THE APPROVAL IS BEING ISSUED WITHIN ONE MONTH

• IF REQUIRED, INDEPENDENT ON ELECTRICAL NETWORK SUPPLY (SOLAR PANELS)

• THE CARS ARE STOPPED BY ADVANCE SIGNALING IN FRONT OF THE CROSSING, SO THAT THE ACCIDENT IS IMPOSSIBLE

• FOR ADDITIONAL SAFETY, AN ADDITIONAL BARRIER CAN BE USED AND IS LAUNCHED ONLY WHEN THE VEHICLE RUNS ON THE RED TRAFFIC LIGHT

• QUICK INSTALLATION (CCA IN 1 MONTH INCLUDING THE APPROVAL) IN COMPARISON WITH UNDER/OVERPASSES, WHERE THE IMPLEMENTATION LASTS FOR 4 YEARS.

• LOW PRICE COMPARED TO UNDER / OVER PASSES (50 – 100 TIMES CHEAPER)

• IT AVOIDS CRASHES IN FRONT OF CROSSINGS COMPARED TO THE CROSSING SECURITY SYSTEM WHICH SOLVES THE DANGEROUS SITUATIONS ON CROSSINGS; THUS, IT DOES NOT SUBSTITUTE, BUT COMPLEMENTS THEM.

• IT DOES NOT SUBSTITUTE UNDERPASSES / OVERPASSES, BUT IT ENSURES THE PASSAGE BEFORE ITS COMPLETION, THEN IT IS DISMANTLED AND QUICKLY INSTALLED ON ANOTHER CROSSING WHICH IS NOT YET SECURED BY UNDERPASS / OVERPASS.

• ADVANCE SIGNALING SYSTEM CAN BE CONVENIENTLY RENT UNTIL THE UNDERPASS/OVERPASS IS FINISHED
It is true that the barriers do not optically enhance the road, but if the vehicle stops on the red, they are not activated, so as if they were not there. When the vehicle passes red and rushes to the raised safety barriers and thus can cause a serious accident, it does not matter whether the barrier (does not) beautifies the road. Important is that it prevents further railway crossing of the vehicle and possibly an accident – it is the only means of stopping the vehicle in its way. The vehicles that pass just after the change of orange to red, which is not unusual, arrive at the crossing (at 50 km/h) after cca. 6 seconds, i.e. long time (about 20-40 seconds) before arrival of the Train, hence it will not endanger the crossing of the train. Passing the long-lasting red is not usual, so the barriers are unlikely to be needed.
Avoiding accidents by overtaking vehicles at the barrier site.

It is advantageous to use Half-barriers in the Advance signaling. This is possible by using mechanical elements that prevent bypassing of barriers and overtaking them in the opposite direction. See next picture, please.
TYPICAL BYPASSING OF BARRIERS WITHOUT LINE SEPARATION

An example of avoiding barriers in case, where there are no additional precautions installed
The advance signaling barrier is not fixed, therefore it will adjust to the car hitting it when not stopping, preventing from damages on the barrier itself and the car. After the car passes it returns to its original position. The intensity of resistance can be set in a way not to cause damages to vehicles. Also it is possible to set the resistance to a level which causes a certain damage, to discourage drivers from violating the legal driving through.
SOLUTION FOR ADVANCE SIGNALING IN COMBINATION WITH AN INTERSECTION CLOSE TO THE CROSSING

In case there is an intersection close to the crossing, it is managed in a way that the cars in the lane heading towards the crossing are stopped by a red light during the signaling time. The other lanes are free to go.
The highest level of security on railway crossing, where also pedestrians cross, is granted by turnstiles. Those are situated on pavements in a way that they continue in line with the barriers. Further in the direction from the crossing another barrier (e.g. fence) follows – this prevents undisciplined pedestrians from avoiding the turnstiles. During the time the barriers go down the turnstiles are locked, which enables the pedestrians to go through to the space of railway tracks. After the barriers go up again, the turnstiles are unlocked.
Slovakia, Velký Medér pilot project for installation of Advance signaling equipment - we are negotiating directly with Minister of transport Arpád Ersek and the Director of Traffic Police.
ADVANCE SIGNALING SOLUTION IN STUDÉNKA, CZECH REPUBLIC
ADVANCE SIGNALING SOLUTION IN HLUBOKÁ NAD VLTAOU, CZECH REPUBLIC
ADVANCE SIGNALING SOLUTION IN MORAVSKY PISEK, CZECH REPUBLIC

Moravský ppísek, Czech Republic – railroad crossing

ul. ZA DRAHOU

Soud detection

POZICE 1
20.0m

POZICE 2
60.0m

POZICE 3
80.0m

Bariers
INTERNATIONAL INTEREST IN THE PROPOSED SOLUTION

PARTICIPATION IN THE TRADE FAIR „INTERTRAFFIC“ IN AMSTERDAM
INTERNATIONAL INTEREST IN THE PROPOSED SOLUTION

PARTICIPATION AT FOREIGN TRADE FAIR IN CHINA (GUANGZHOU)
CTSE - CHINA INTERNATIONAL ROAD TRAFFIC SECURITY PRODUCTS EXPO

Studénka accident with FPD solution
On Chinese television