

Video track representation

An alternative to the virtual representation is the projection of a line with a video, provided it can be shown in both forward and backward directions, and at any speed. Because the signals are normally open during video recording - which is not always desirable when using the simulation - they can be overwritten with bitmaps editable by the instructor. The video films are comprised of individual frames which make it possible to include alternative routes. Using 3D modeling it is also possible to integrate objects that were not present in reality (i.e. when recording), such as trains running in the opposite direction. For video representation, computers must be equipped with a large, fast hard disk (one hour of recording is more than 20 GB). Today's computers can run at about 25 frames per second.

The video representation costs significantly less and can be produced much faster than a 3D virtual world. For example, for InnoTrans 08 in Berlin, the track Thenia-Alger (47 km) was filmed on the 15th September 2008, then edited and synchronized including trains traveling in opposite directions. It could be shown on the simulator on the 23rd September. New situations or modifications (eg work-sites) on a simulator are possible within a few days.

The exact reproduction of real tracks, coupled with easily recognizable sites in the video, allows the practice of an energy efficient driving style.

The track plan to scale, complete with all its indicators and signals, level crossings, platforms, simulated train and trains traveling in the opposite direction is shown on the instructor's screen. The position of signals and the lighting in front of trains traveling in opposite direction can be changed simply by clicking.

Database

Track data (gradients, curves, etc. depending on location) for the determination of train dynamics.

Data will be provided by the client.

Costs

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| 1. Single track, synchronized | CHF100/km |
| 2. Setup costs per vehicle and recording campaign | CHF2000 |
| 3. Per stop during the video recording (also involuntary stopping) | CHF100 |

If no speed signal can be taken from the vehicle (at least one value per second), the cost of 1-3 is doubled.

The minimum amount of 1-3 is CHF5000

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| 4. Editable signal (per track) | CHF100 |
| 5. Interface with supplementary tracks (per point): | CHF400 |
| 6. Trains traveling in opposite directions, objects and signal dependencies
according to time | CHF115/h |

Organizing the filming of the track (permits, provision of vehicles and movement of the train) will be assumed by the client.

Sounds

Background noise (eg level crossings) can be inserted as wav files.

Liaison with Microsoft Train Simulator

Objects and vehicles can be inserted in many locations and can be used eg as trains traveling in opposite directions. Files with eng, wag, s and ace extensions are used.

Required storage capacity of hard disk

20 - 40 GB per hour of film recorded

References

Appenzell-St.Gallen

Bern-Solothurn, Bern-Worb

Spiez-Brig-Domodossola, Spiez-Interlaken, Spiez-Bern-Neuchâtel

Alger-Thénia, Alger-El Affroun

Modane-Chambéry

Torino-Susa

U3/U6 München



Modane-Chambéry line



München underground



Chemins de fer du Jura
editable signal



Dutch Railways
video with virtual 3D station and virtual trains