

# SpDrS60 Network Combinations

*Inclusive wireless mobile access*

Information about Raptor [www.raptor-digital.eu](http://www.raptor-digital.eu)

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This document lists the most common examples of configurations / assemblies between Raptor(s), computer(s) and wireless devices in a network.

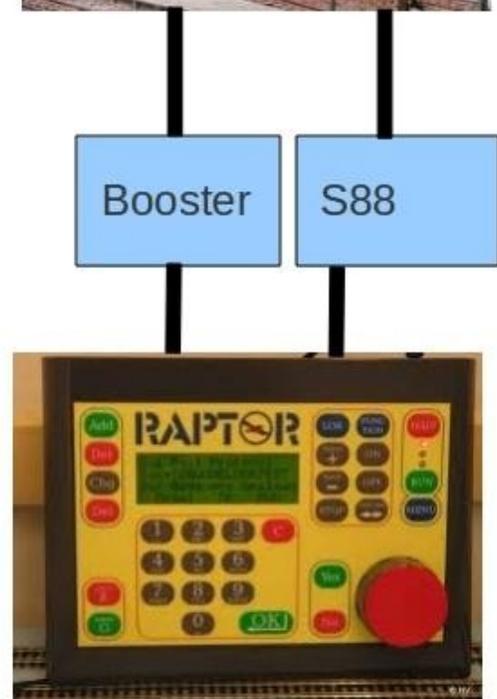
This first picture is the situation in which each new user with a Raptor starts in any case. This is the minimum composition ability to automatically drive any complete layout without a computer whatsoever.



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The following pages shows different ways how a graphic and/or wireless operation presentation for many users at the same time may be added to this basic concept without disturbing the ever flawless automatic train drive control by Raptor in any way.

Indeed, even if the attached (SpDrs60) computer network crashes all together, then *still* your automatic train drive by your Raptor remains *absolutely* unaffected!

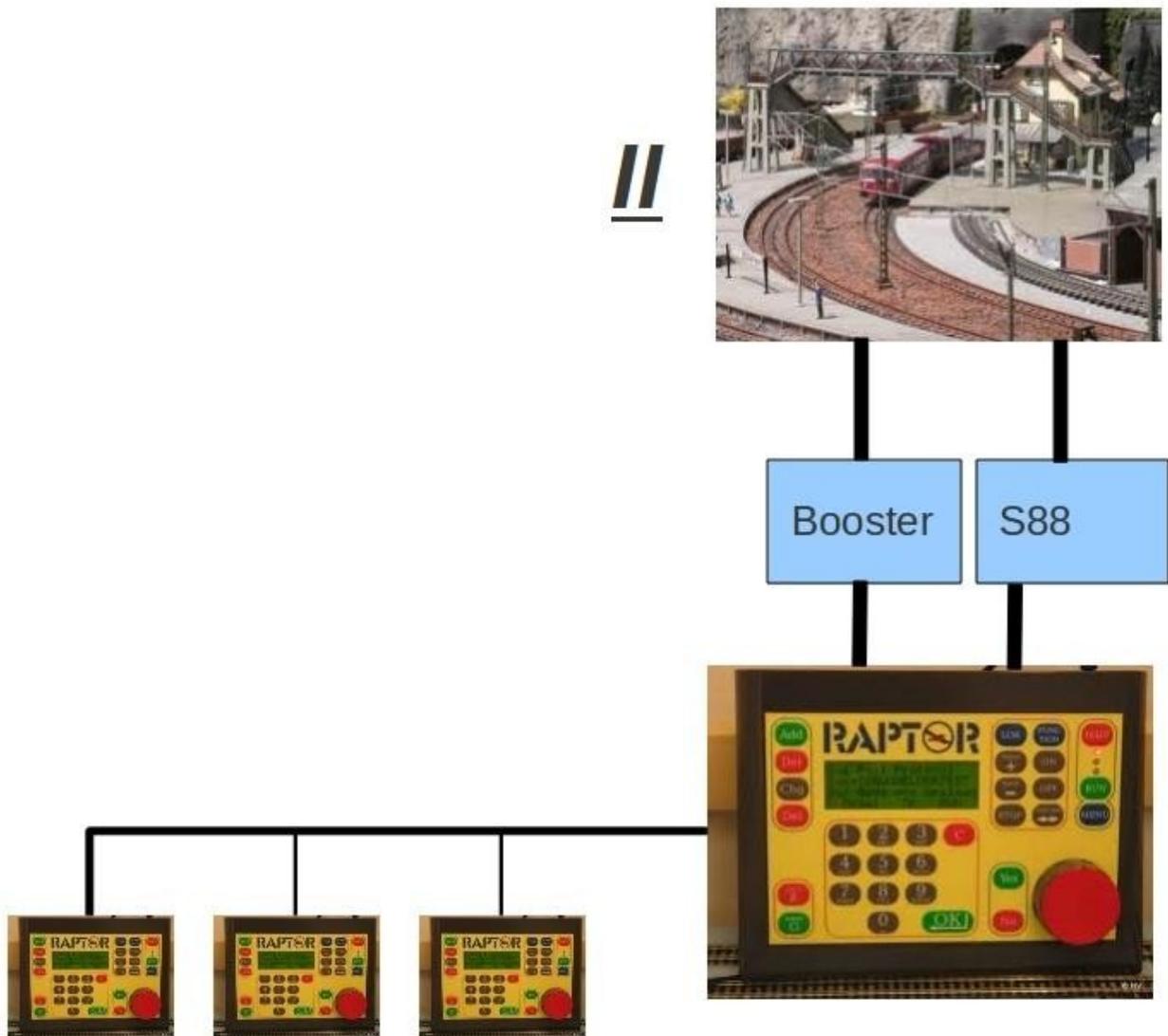


This second image shows that an almost unlimited number of "slave" Raptors via the RBus network can be connected in addition to the "main-Raptor" also, which controls the track, through the booster, and S88 rail inputs feedback.

A "slave"-Raptor may be a Manual-Raptor (that is a Raptor without automatic) and/or just as the main-Raptor also a standard Raptor-with-automatic, The RBus cables are quite ordinary 4-wire(at least) phone cables and you prick the cables (of the type "extension" and "cross" interchangeably used) just haphazardly behind the Raptors repeatedly until everything is connected with each other. Test this simply by using the RUN / HALT buttons.

Should there be no "network numbers" set? No, this automatically sets itself with unique numbers. Manual actions committed on the layout through each (slave) Raptor while the reaction speed via a slave Raptor is just as fast as acts done on the main-Raptor!

However, by administrating the network number manually any Raptor can be divided in groups. Raptors in this way are ideal for use in a club! Everyone could bring his own main-Raptor from home to the club and temporarily deploy it as a slave-Raptor on the main-Raptor of the club...



In this third image is an Interface connected to the main-Raptor. An RS232 (USB) cable then goes from the interface to the computer. In case of a normal RS232 a cable must be connected to the COM1 port of the computer. Any USB port to an RS232-USB cable may be plugged haphazardly.

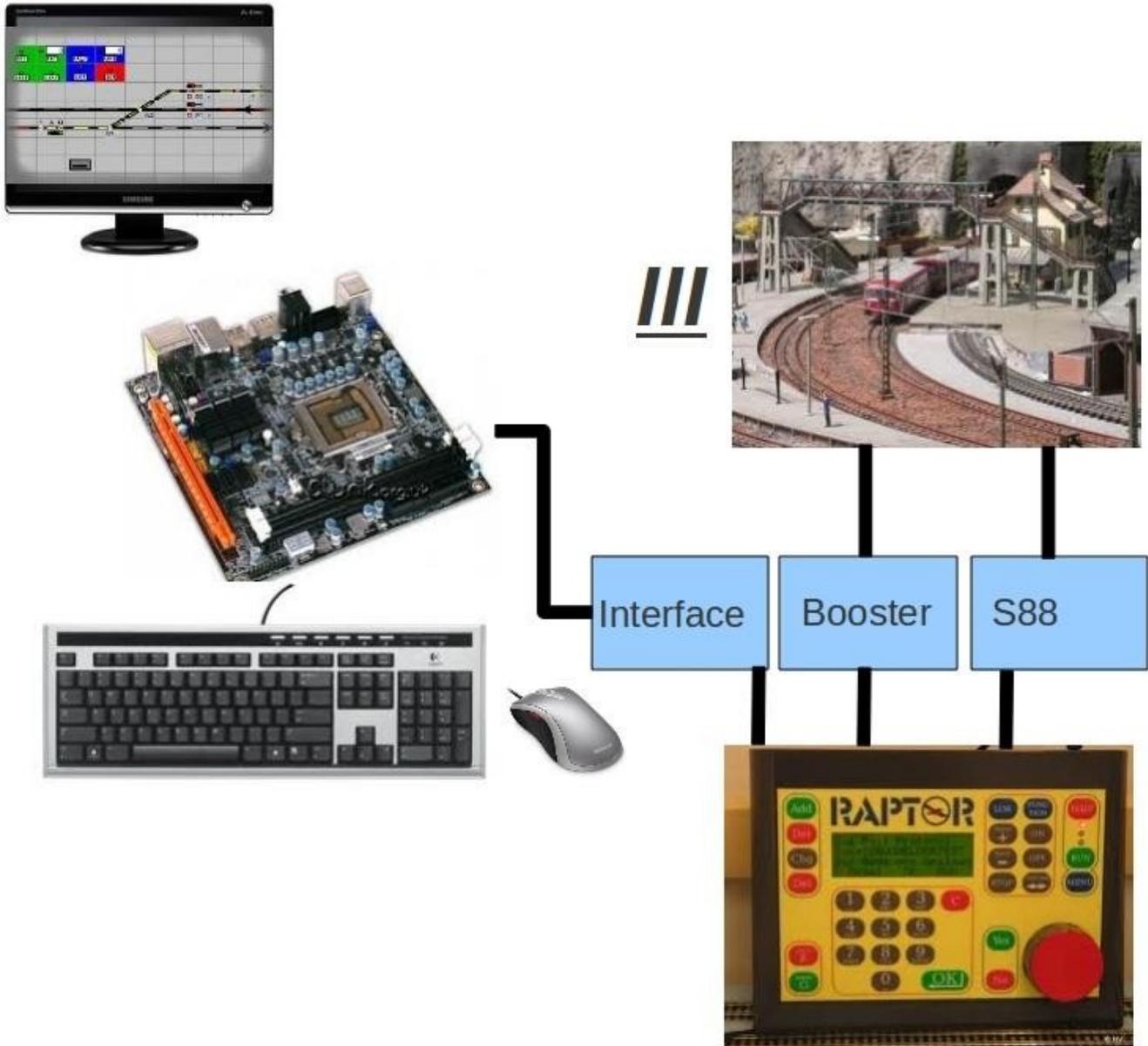
The computer on which the SpDrs60 program runs is automatically finding the port where the Raptor-Interface is connected.

Only a screen, keyboard and mouse needs to be connected last to the (desktop)computer.

The computer itself can be a (Windows) PC which runs from a SpDrs60-USB stick or a complete dirt-cheap Raspberry Pi computer, hereinafter referred to as SpDrs60-RPi.

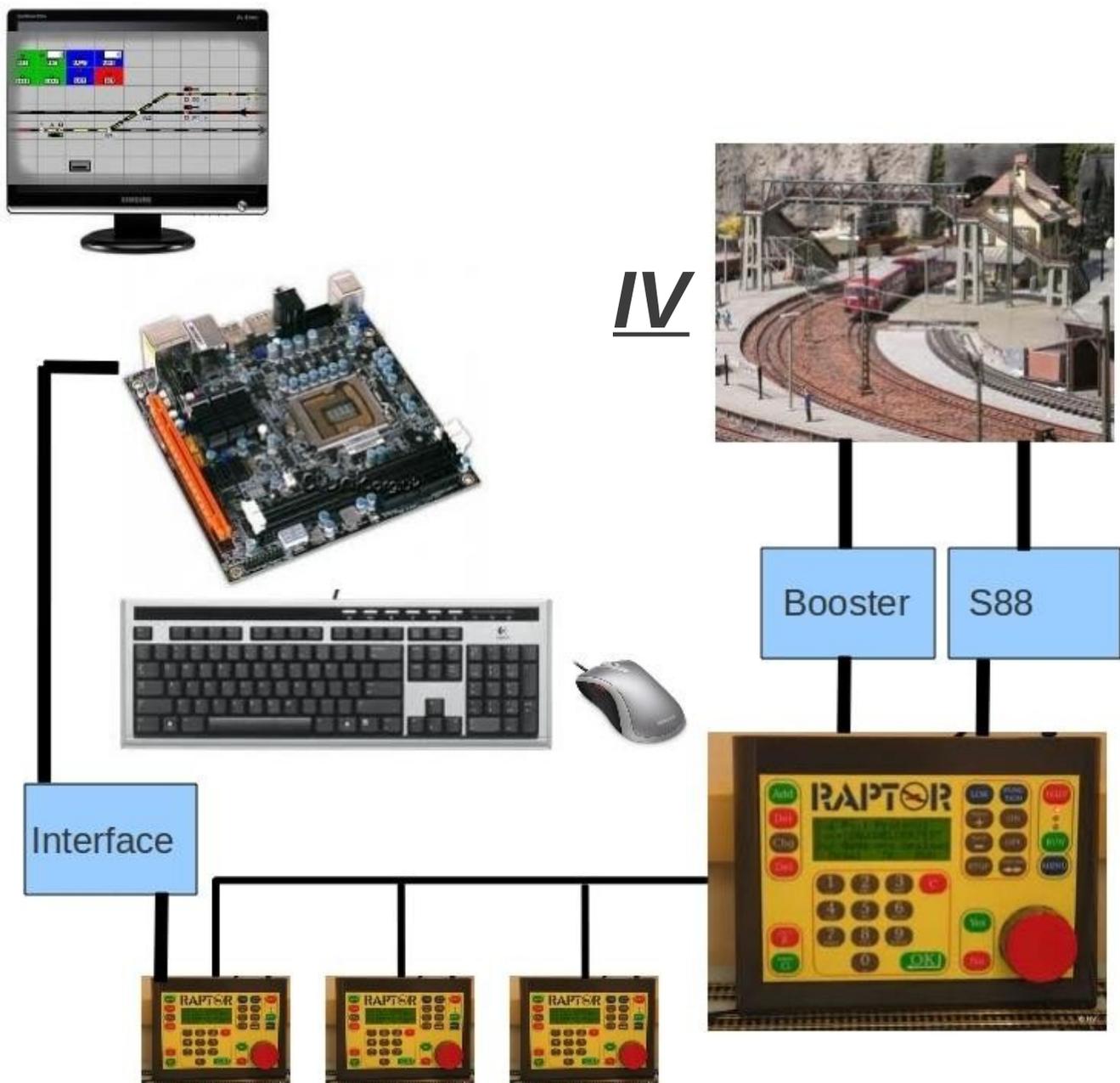
You draw your own Rail-layout in SpDrs60 and then you see on the screen all train movements and the current state of ALL turnouts and signals directly("live"). In addition, mouse clicks are switching commands for turnouts and signals. (Unless Raptor knows that at that time a train passes over them. In that case, Raptor "on paper" changes the turnout position/state back on the screen at once)

Thus, in the third image two people may at the same time (co)control the layout. One behind the Raptor, and the other behind the computer screen. (Do not do the latter that too often, otherwise your pets are the only remaining ones watching your moving train show ...)



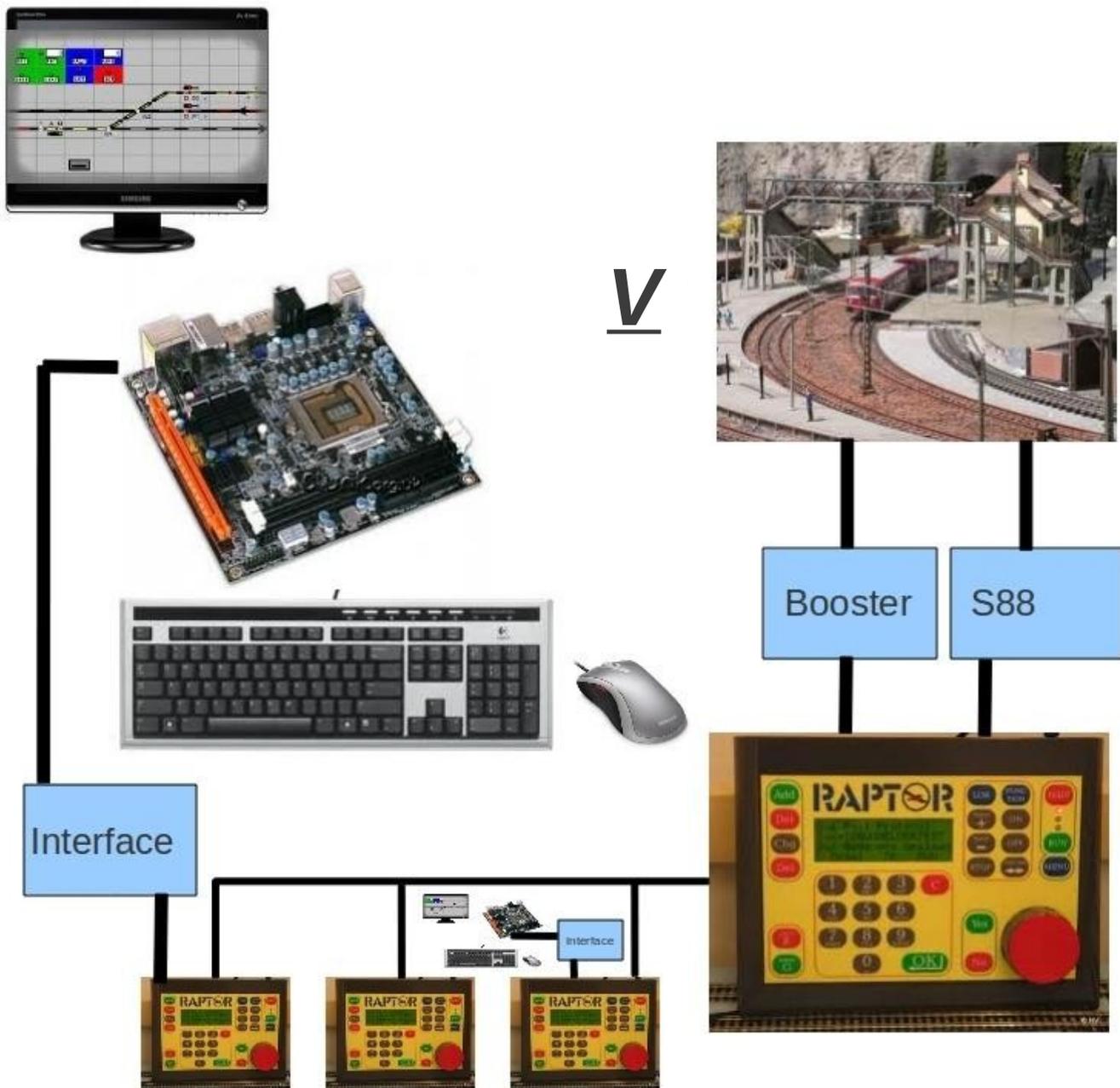
The fourth image is a combination of composition II and III. Note that this time the interface is not connected with the main-Raptor but to a slave-Raptor. The slave-Raptor with the Interface must be of the type Hand-Raptor.

An advantage is here that the interface at all times can be disconnected or mounted without interrupting the automatic train drive from the main-Raptor. For example, one group of a club is "just" driving (automatically) with the main-Raptor while the other group could play *completely independently* with a computer and Interface.



This fifth image is an extension of the previous image IV. Note that a second interface with a second computer is connected to a slave-Raptor. The second slave Raptor with the Interface must also be of the type Hand-Raptor.

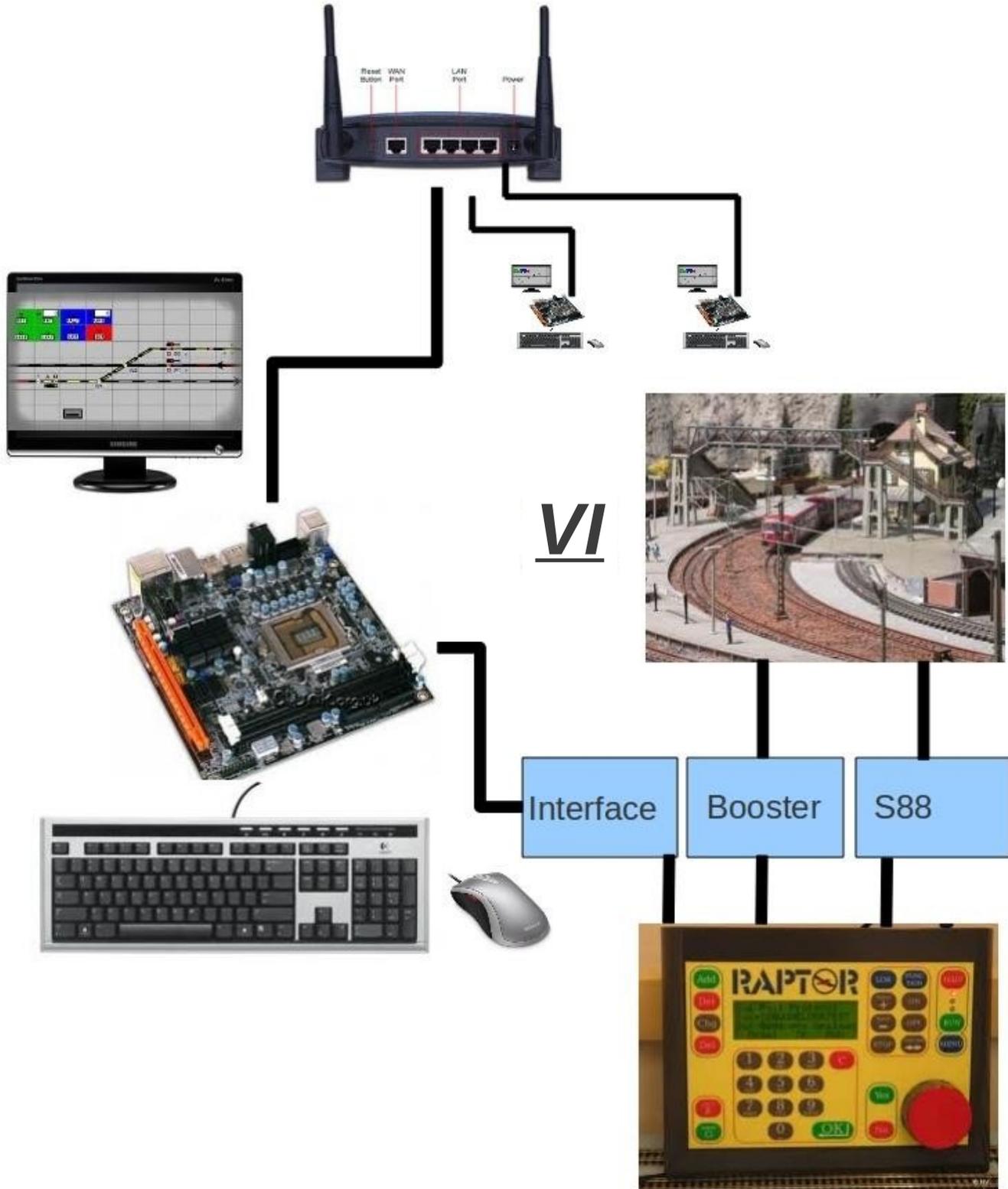
Again in the case of a club there is for example one group "just" driving on the main-Raptor undisturbed while the other groups can play completely independent and may work with multiple computers and Interfaces.



The previous fifth picture is otherwise an expensive solution, as an extra Raptor and Interface is required to connect an additional computer. And therefore I show in the sixth image, the most inexpensive solution for the benefit of multiple users with still the same facility.

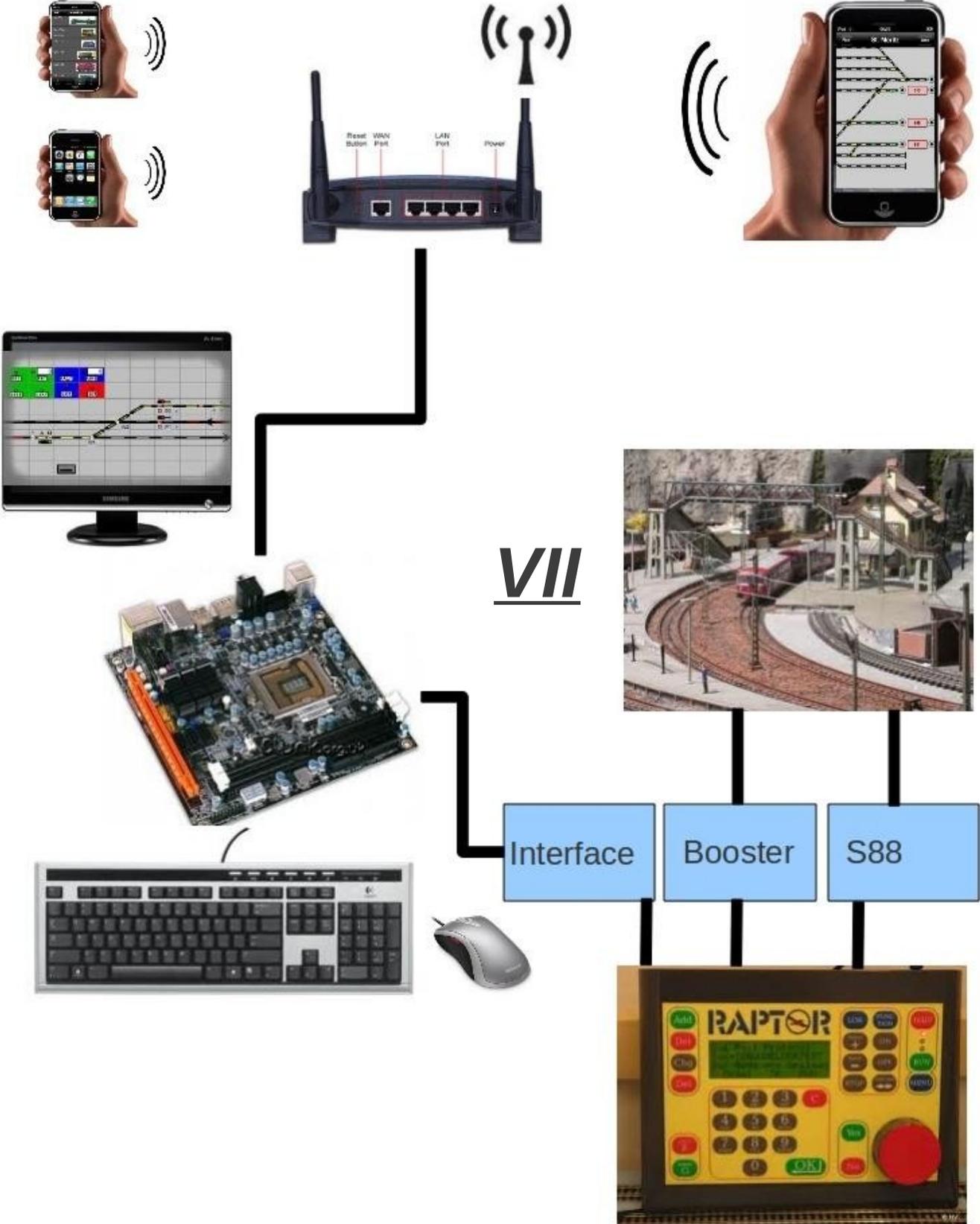
This sixth picture is an extension of situation III. This time the main-computer (SpDrs60-USB or SpDrs60-RPI) is connected via an Ethernet cable to a router. (And chances are that you already have one at home serving the Internet.)

On the same router now several slave-computers (SpDrs60-USBs and/or SpDrs60-RPIs) can be connected where relevant SpDrs60-settings have been made to make connection with the so-called SRCP-server on the SpDrs60 main-computer as a “gateway” to the main-Raptor.



On the router is nowadays an antenna. And some already have an iPad, iPhone, wireless Laptop, Android tablet and / or Windows Mobile devices at home in use. If thereon, through the "Apple shop", "Google play" and "Windows Mobile" online store therefor a "VNC\_viewer" App is bought for a cheap price then multiple users can wireless obtain a SpDrs60 view on their mobile device, and so see the layout administration and doing layout control.

See this seventh picture! In it I have the other slave computers from the sixth picture momentarily removed because using a single main computer and mobile devices for the rest, works also just fine.

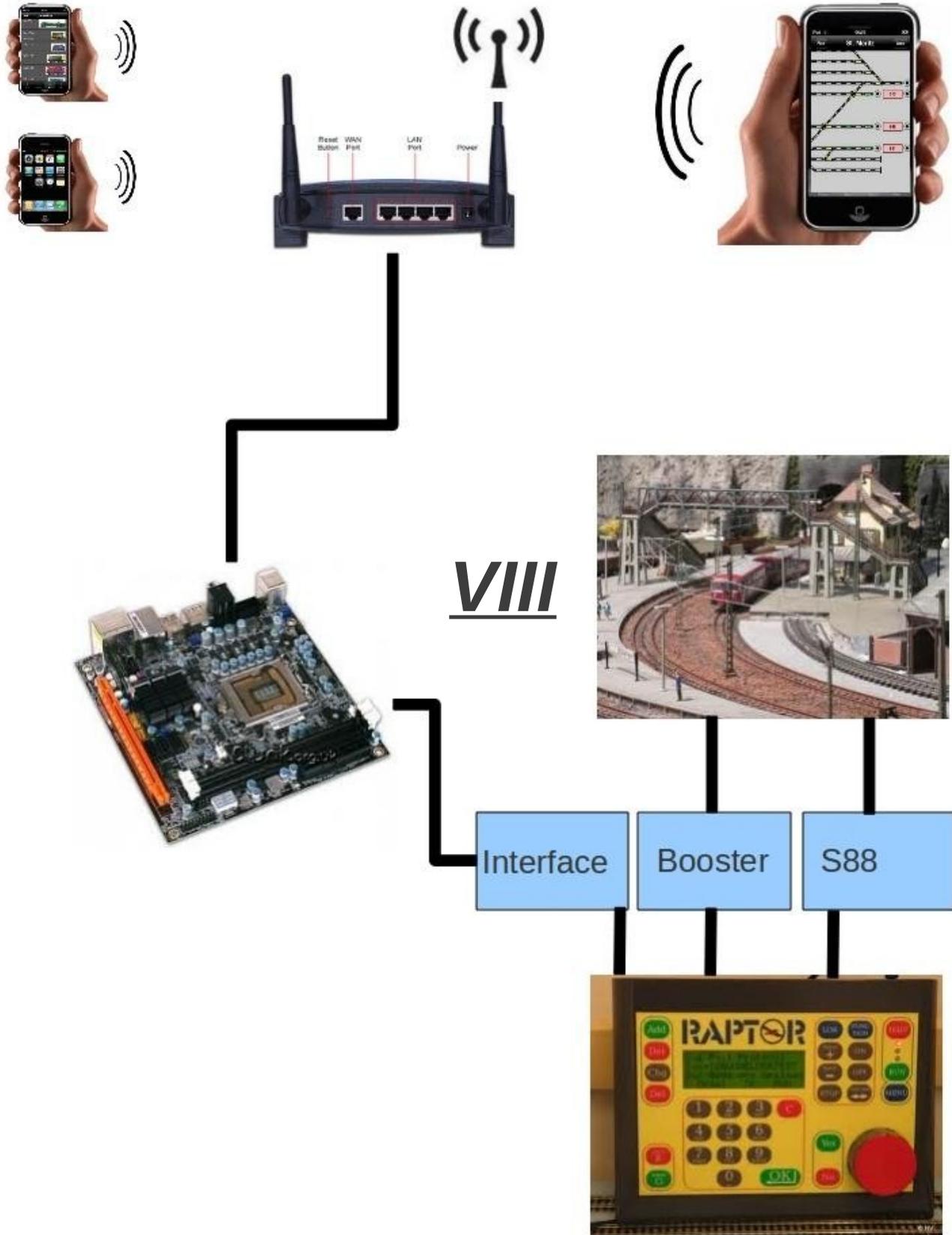


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Can the mouse, keyboard and screen from the previous image be omitted? Because it only takes place and it consumes power ... The track plan editing and control I have over the mobile devices instead.

Yep, that is also possible. In this eighth image only a SpDrs60-RPI as main computer is connected to which all mobile devices connect. The SpDrs60-RPI terms of power consumption fluctuates around 4 watts so that costs about 9 Euro each year if the ENTIRE year, 24 hours a day 7 days a week, it stays on ...

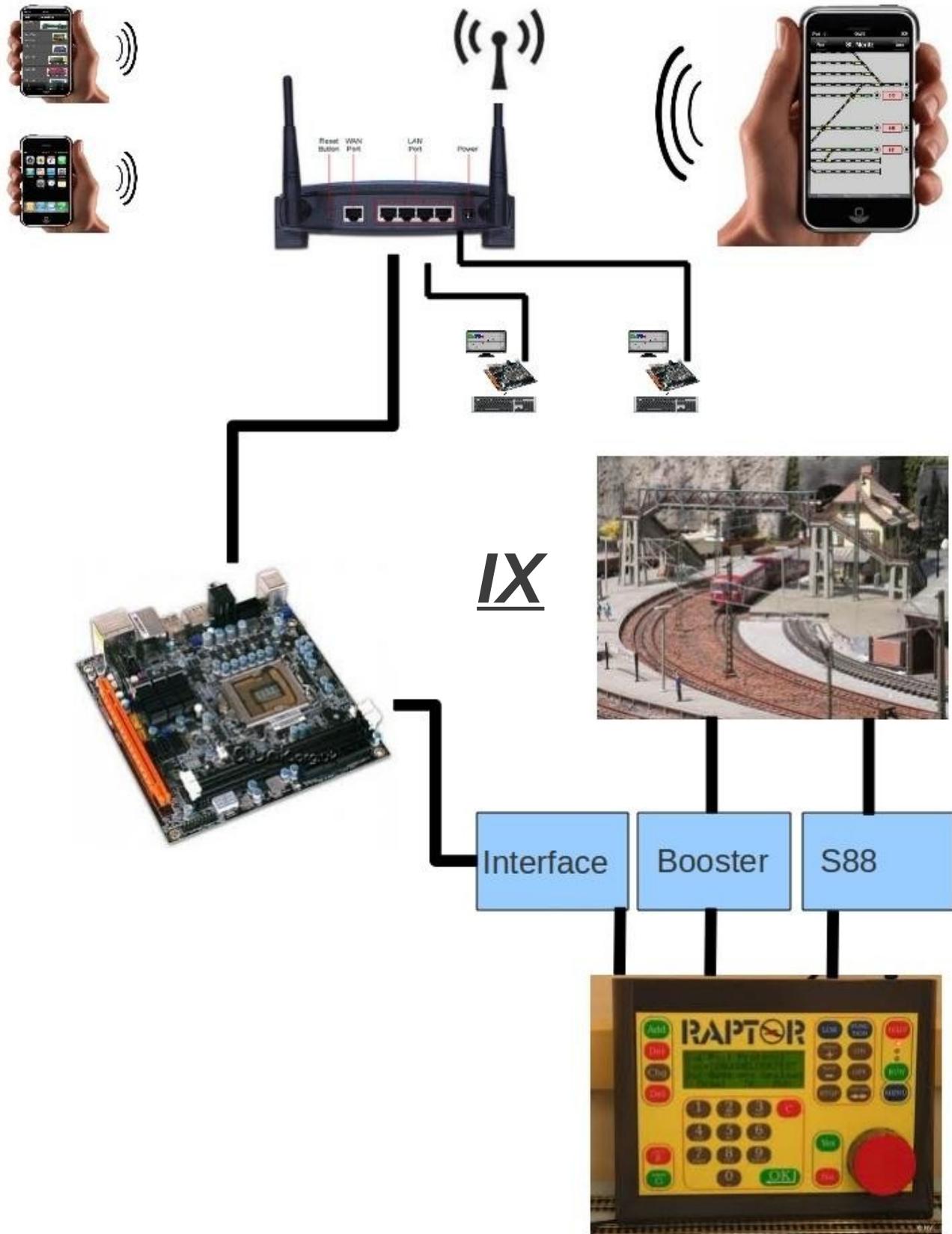
Well, cheaper than this is simply hard to achieve!



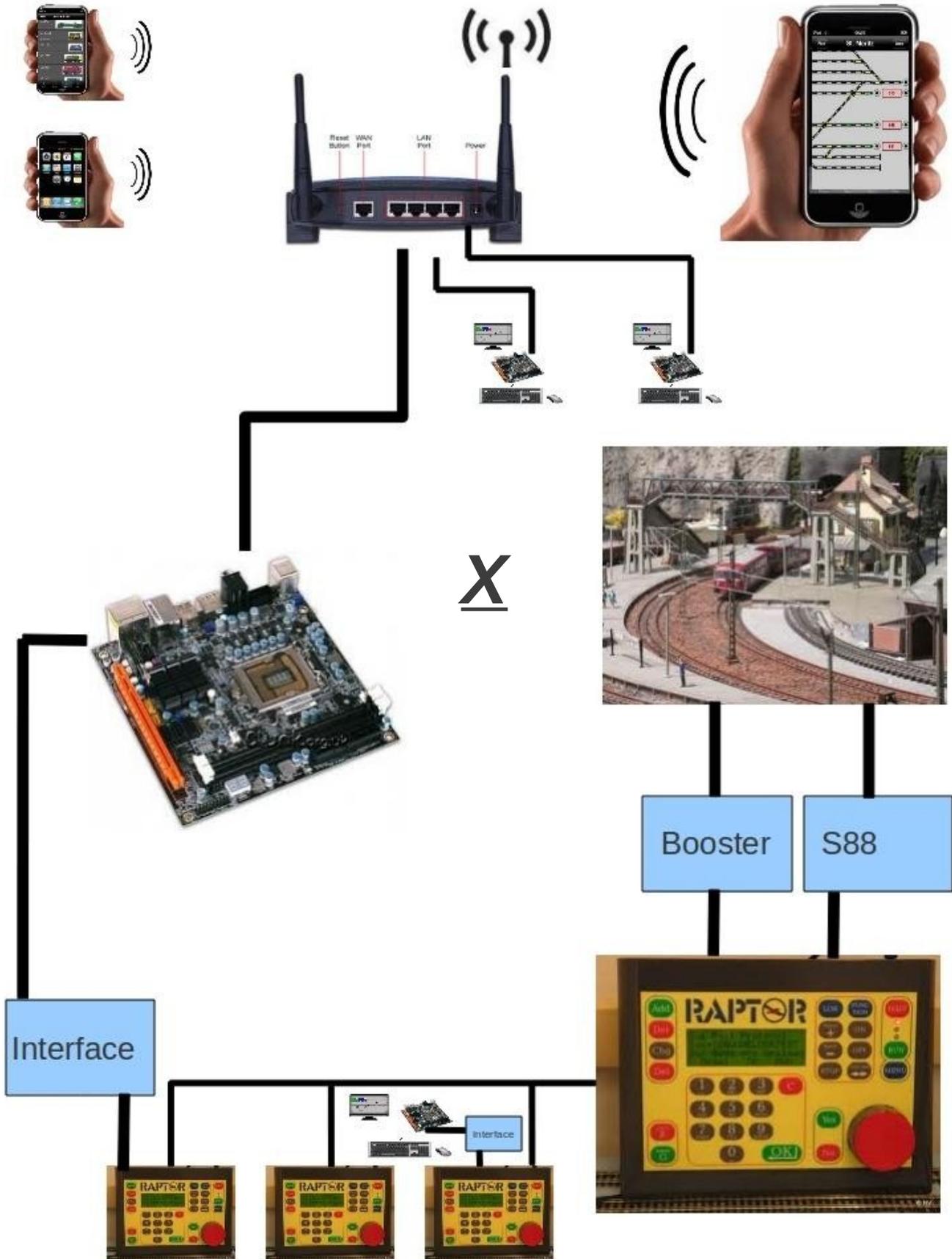
If we combine the sixth and seventh picture into this ninth image then users may work on multiple computers as well as multiple mobile devices simultaneously.

Now everyone acts through everyone's personal SpDrs60 window while on the connected SpDrs60 windows of all other users is directly to monitor "live" all done actions! Besides that, of course (due to the SRCP server) any automatic actions by Raptor are also visible on all connected SpDrs60 windows of all users immediately!

This is the image for which the main computer (i.e. a SpDrs60-RPI) without keyboard / mouse and monitor can be set up. A very advantageous club composition!



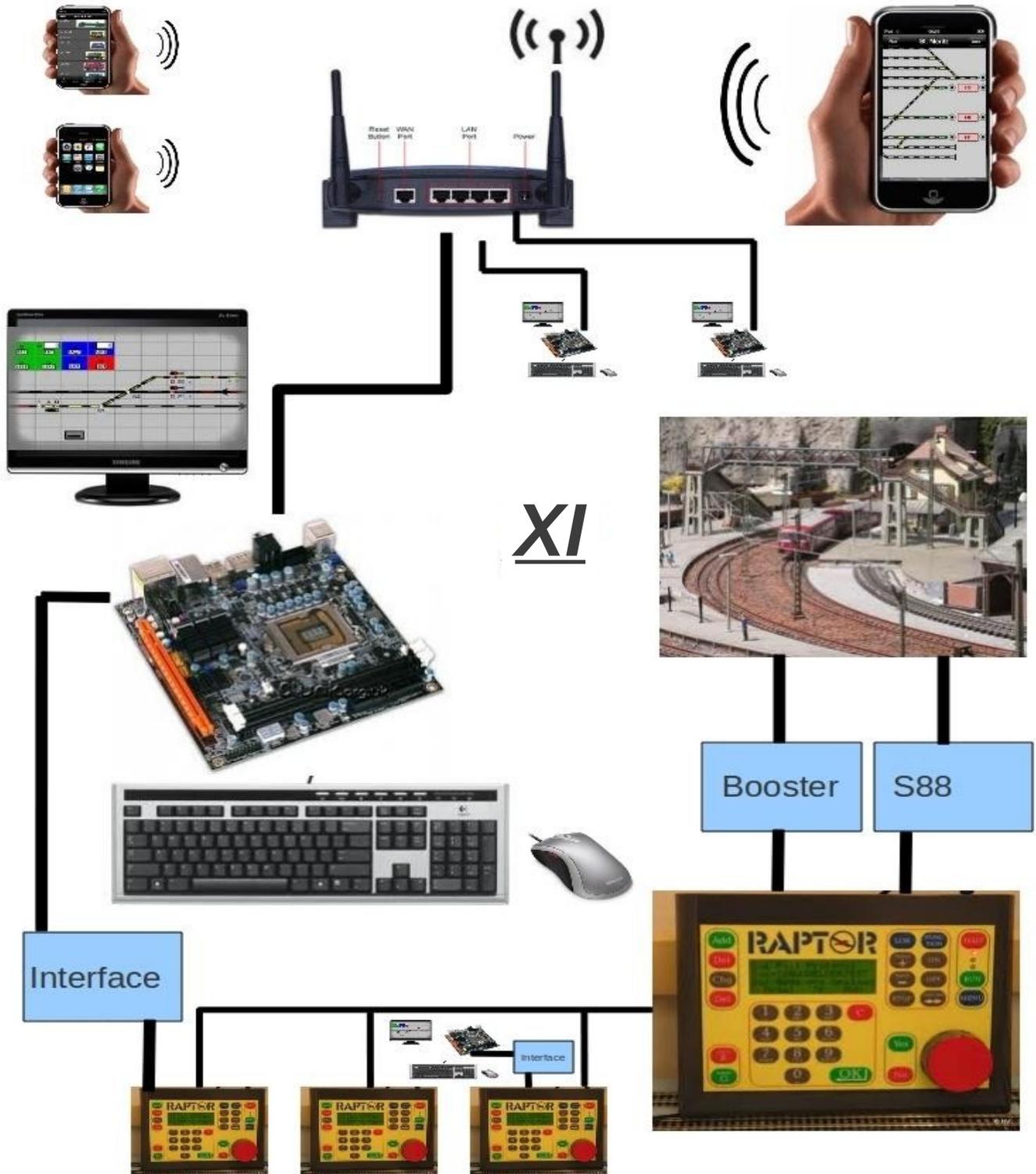
This tenth picture shows a club combination of a permanent SpDrs60-RPI main computer without screen, keyboard and mouse and a second main computer with screen, keyboard and mouse on a (second) Hand-Raptor with Interface.



If you would like to build a train exhibition so that all visitors, even on their own mobile devices, may control a part of the exhibition in such a way that through the Raptor signal boxes it is IMPOSSIBLE to collide trains together and/or switch turnouts under moving trains without getting bogged down in old-fashioned conventional computer control troubles, then take a look at this last image.

The reason that conventional computer control is becoming outdated has to do with the fact that, through a mobile access approach of the computer, it can often be operated by ONE person at a time only. That's because a conventional computer control, as a so-called "single-user" system, can not be divided into independently controllable parts in contrast to this SpDrs60/Raptor combination, as so-called "multi-user" system, where it IS seamlessly possible to make simultaneous layout control a new fact of model train life.

There are probably more compositions. Well, chances are they are possible as well ... (Control via the Internet for example ...)



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