The typical way of teaching the basics of computer bus functionality is a presentation of an abstract timing diagram, that describes a number of various concepts simultaneously, which can be difficult to understand. Presenting a practical example of a bus communication, that student could interact with, is usually not feasible. There is a lot of virtual computer systems, that could be used for creating such practical example. Unfortunately, none of them allow the visualization of bus transmissions. In this thesis we alter the Bochs virtual computer in such a way, that its data transmissions are taken into an external application of our creation, that allows simulation of a bus transmission over a bus topology and presentation of such transmission to the user in a form of a timing diagram. The design is carried out with the expectation, that the program will be used as a learning tool. We also design the program to support various parallel buses, while adding the ISA bus as an example.