











## CONCLUSION

The VL consists of servers and clients based on the network. A client can use experiment materials stored on servers to enable students to practice experiments. Besides the virtual laboratory for microcontroller principle in this paper, some frequent virtual laboratories such as “animal laboratory”, “chemistry laboratory” and “physics laboratory” can be constructed. Although the virtual laboratory can not replace traditional laboratories in actual applications, it has the advantages not provided by traditional laboratories, e.g. solve problems due to actual economy factors and space factors. The traditional laboratories should be combined with the virtual laboratories to meet teaching requirements in actual teaching and learning. To study the construction of VL for the college computer hardware course group, this paper mainly studies construction of VL for microcontroller principle and describes theory knowledge for VL construction in detail. The established VL for microcontroller principle is used to simulate DS1302 experiment. Proteus used to design circuits based on typical microcontroller principle circuit diagram. The C language is used to design programs. The simulation results indicate that the established VL for microcontroller principle can be used to design the circuit diagrams. Proteus can call keil-1.hex files for simulation. The simulation results are ideal and are practical to some extent. The VL can improve the practice capability of students and meet the experiment requirements in modern colleges.

## CONFLICT OF INTEREST

The authors confirm that this article content has no conflict of interest.

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