Project Overview
Universal remote control was developed for solving the problem that finding the corresponding remote to control the desired devices each time. In this project, we would like to apply this kind of system, and we will focus on striking the balance between the functionality and price of low- and high-end remotes.

Objective
The configuration of the system should not be too complicated
• Relatively low material cost
• The control panel of the remote should contain a few buttons only for input
• Have reasonable control range, and reduce the miss rate during transmission

Methodology
Decision on Hardware
• Infra-red Tx/Rx: Low material cost and one-to-one control
• Intel 89C52 microprocessor: Low material cost, desired programming capacity, and processing speed fit our design
• Character LCD Display Module: Built-in character database inside the module, low cost
• Bi-directional transmission circuit: For instant devices identification, and ensure the setup procedure successful

Decision on Software
• Medwin 3.0: Faster assembling programming speed, and save memory
• PADs Logic/Layout: User-friendly interface for quick manipulation pick-up

System Block Diagram and Hardware Layout of Remote Control System

16-bit Transmission Signal Protocol Structure

Further Development
• USB port for power charging and codes update from connecting to the Internet via PC
• Improve control accuracy

Conclusion
The engineering of consumer electronic products is always the balancing between functionality and price, and need to consider the user-friendliness as the higher priority in the design aspect, the purpose of consumer electronics development is to help people to finish the task more effectively and efficient.