

# The little man computer

[Technology](#), [Computer](#)



The ELM models a simple Von Neumann computer architecture used primarily to teach students. The ELM contains all the components of a computer [CPU], memory, and input output capability. The ELM system architecture uses basic design elements to help illustrate the basic concepts of processing Input and output. The basic architecture is comprised of a little man in a small room that performs basic tasks.

The little man executes basic tasks by following a set of instructions. The main components of the ELM are mailboxes, calculator, inbox, and outbox. Like in a real computer, the memory in the ELM consists of mailboxes which are slots to hold stored information. The calculator is like the Arithmetic Logic Unit on a real computer, and the inbox and outbox are for receiving and outputting data similar to keyboard and monitor. With this basic design the ELM is a great introductory tool to help illustrate how a fetch and execute process works.

Stops the Computer - the Little Man rests. Xx ADD xx Adds the contents of mailbox extol the calculator display. MM SUB xx Subtracts the contents of mailbox xx from the calculator display. Sexton Stores the calculator value into mailbox xx. Xx Stats Stores the address portion of the calculator value (last 2 digits) into the address portion of the instruction in mailbox xx LOAD xx Loads the contents of mailbox xx into the calculator. Xx B xx This instruction sets the instruction counter to the number xx, thus effectively branching to mailbox xx See the note for instruction BP MM BIZ xx IF the calculator value is zero, THEN set the instruction counter to the number xx, thus effectively branching to mailbox xx. See the note for instruction apex BP IF the calculator value is positive, THEN set the instruction counter to the

number  $xx$ , thus effectively branching to mailbox  $xx$ . NOTE: zero is considered positive.

NOTE: Because of the three branching instructions, it is important for the LITTLE MAN to FIRST increment the instruction counter and THEN carry out the Instruction. If he FIRST set the Instruction counter to  $xx$  and THEN incremented the instruction counter the next instruction to be executed would be in mailbox  $xx+1$ , not in mailbox  $AAAS$  as intended. 01 READ Read a number from the IN basket and key it into the calculator. 902 PRINT Copy the number in the calculator onto a slip of paper and place it into the OUT basket.