

The first computer-like machine was the Mark I. It was built, in 1944, jointly by IBM and Harvard University under the leadership of Howard Aiken. Using handheld devices, delivery drivers can access global positioning satellites (GPS) to verify customer locations for pickups and deliveries. This era also saw the emergence of the software development industry, with the introduction of FORTRAN and COBOL, two early programming languages. In the next major technological advancement, transistors were replaced by tiny integrated circuits, or "chips." Chips are smaller and cheaper than transistors and can contain thousands of circuits on a single chip. His design included components such as an arithmetic logic unit, a control unit, memory, and input/output devices. In 1946, the ENIAC (Electronic Numerical Integrator and Calculator) was built at the University of Pennsylvania. Although there are several categories of computers, such as mainframe, midsize, and micro, all computers share some basic elements, described in the next section. It contained 18,000 vacuum tubes and weighed some 30 tons. In 1956, the invention of transistors resulted in smaller, faster, more reliable, and more energy-efficient computers. In the 1980s, clones of the IBM PC made the personal computer even more affordable. Mobile computing applications are growing significantly.