

That Little Instrument in Your Pocket

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In 2003 Richard Rubin interviewed 102-year-old Frank Buckles for his book, *The Last of the Doughboys*. Buckles still lived and worked on his farm at 102, he died at the age of 110. As the interview ended Rubin asked Buckles, “You have lived to see so many changes. What kind of things have you seen that you never could have imagined?”

Frank said, “That little instrument you have there, in your pocket” pointing to Rubin’s cell phone.

Alexander Graham Bell invented the telephone in 1876 (145 years ago) then 97 years later Martin Cooper, a Motorola engineer, made the first handheld cellular phone call from Sixth Avenue in New York while walking between 53rd and 54th streets. Now we have smart phones that are like a computer in our pocket.

The first programmable, electronic general digital computer was known as Electronic Numerical Integrator and Computer (ENIAC). The ENIAC dedicated 75-years ago on February 15, 1946, was primarily used to calculate artillery firing tables for the US Army’s Ballistic Research Laboratory. It was heralded as a “Giant Brain” by the press. It contained 18,000 vacuum tubes, 7,200 crystal diodes; 1,500 relays; 70,000 resistors; 10,000 capacitors; and approximately 5,000,000 hand-soldered wire connections. It consumed 150 kW of electricity, weighed about 27 tons, and occupied roughly 1,800 sq. ft. My first house was only 1,100 square feet.

The cell phone is the most common computer that most of us carry. You may not think of it as a computer, but the functionality is enabled by multiple computers working together. The cell phone is something the designers of the ENIAC could never have imagined. Just getting the ENIAC working took everything they had at that time. The designers of the ENIAC were heckled by some of their colleagues saying that ENIAC was a waste of time and would never work. I am thinking they were wrong!

Compared to ENIAC that little instrument in our pockets is 17,000 times cheaper, 40,000,000 times smaller, uses 400,000 times less power, is 120,000 times lighter and it is 12,960 times faster. Computer chips are making things possible that no one dreamed of before. In the 1950’s, Thomas Watson, Chairman of IBM, thought that the world might only need five computers, but he never thought about almost all of us carrying one in our pocket. For more ENIAC details, watch a 9.5-minute video developed by Mark Greenia at the Computer History Archives Project, https://www.youtube.com/watch?v=k4oGI_dNaPc. Wikipedia also has many entries.

I think old Frank Buckles was right when he told Rubin that that little thing in our pockets is the biggest change in my/our life time. It has even changed the way we socialize. Kids, and more and more the adults at family gatherings are either texting or playing games on the little instrument they carry in their pockets instead of conversing with each other face to face. 😊

BIO: Mr. Devlaminck is a Unisys/Lockheed Martin retiree, presently the [VIP Club membership](#) director. His career includes US Navy service and multiple engineering project assignments.