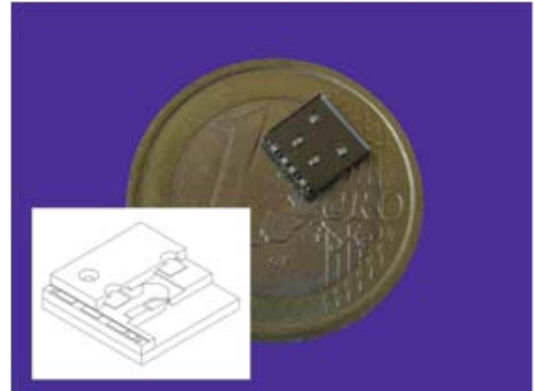


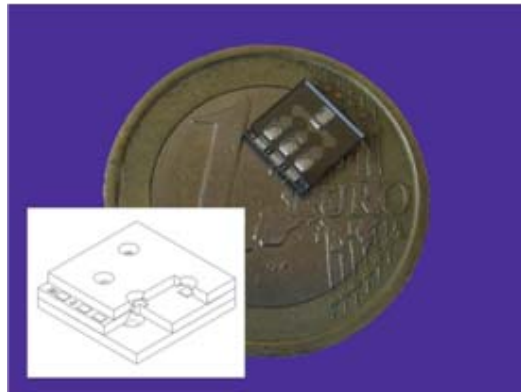
# microBUILDER Cell Counter modules



The core of the module is represented by a device, which performs cell differential analysis by means of the Coulter technique. Coulter counting is a simple sizing/counting electronic technique based on impedance measurements through a small hole, which cells are forced through. If a controlled electric current flows through the orifice, changes in resistance occur as cells pass. For each cell passing the orifice, a change in impedance can be registered and the amplitude of such a change can be related to the particle size and volume.



Cell Counter Vertical Version

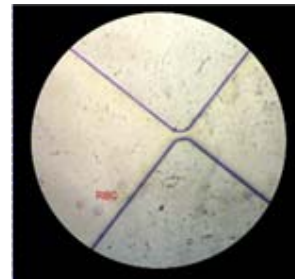
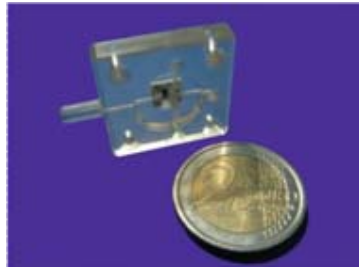


Cell Counter Horizontal Version

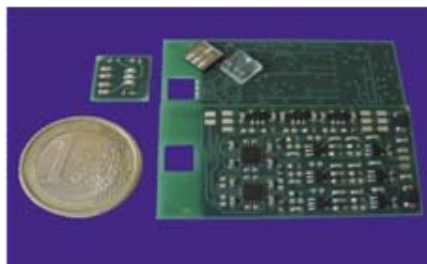
Using microBuilder technologies a biomedical system was designed and fabricated. It encloses a MEMS-based blood cell counter in a portable and low power unit, provided with a fluidic interface and an electronic board. The full device is composed by three parts:

- A miniaturized and innovative version of the Coulter counter;
- A plastic holder with interfaces to the external world;
- EB: an electronic circuit for cell counting.

Plastic Holder  
and  
Electronic  
Board



Red Blood Cells  
Testing



Within this device, impedance method gains some innovative features, both from microsystem technology itself and from new project solutions: self-aligning illumination allows to use compact external sources (i.e., LEDs) and requires no delicate optics.

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