**Low cost microscopy**

Recently, new solutions became available to design and build low cost microscopes either for education or research. Inspiration is found in:

* Arduino electronic platform
* Components obtained from recycling (i.e. lenses from CD drive)
* 3D printing
* Rapsberry Pi mini computer and camera
* Availability of LEDs at multiple wavelength enabling for example easy excitation of fluorescence
* Adaptation to smartphones (not so low cost but will become soon)

We propose here to build a microscope based on the transformation of a web cam by reversing its lens. It is quite simple to do and present good performances. The cost is essentially the cost of a web cam (<10€), a used web cam may also do the job. The other components are found in CD or DVD drives.

References:

3D printed Translation stage for microscopy Cambridge university

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Low-Cost Mobile Phone Microscopy with a Reversed Mobile Phone Camera Lens PLOS ONE | [www.plosone.org](http://www.plosone.org/) May 2014 | Volume 9 | Issue 5 | e95330

Fly Pi microscope from *Trend In Africa*<http://trendinafrica.org/>

<https://open-labware.net/projects/flypi/> or <https://hackaday.io/project/5059-flypi-cheap-microscopeexperimental-setup>

<http://www.instructables.com/id/HOW-TO-TURN-ANY-WEBCAM-INTO-A-HIGH-POWER-MICROSCOP/>

from BBC : [**http://www.bbc.co.uk/science/0/22600308**](http://www.bbc.co.uk/science/0/22600308)