# Monitors

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22303

# About monitors

Monitor - a device, designed for the visual display of information.

# History

Monitor history starts from 1855.

The first step is creation of a vacuum glass vessel.
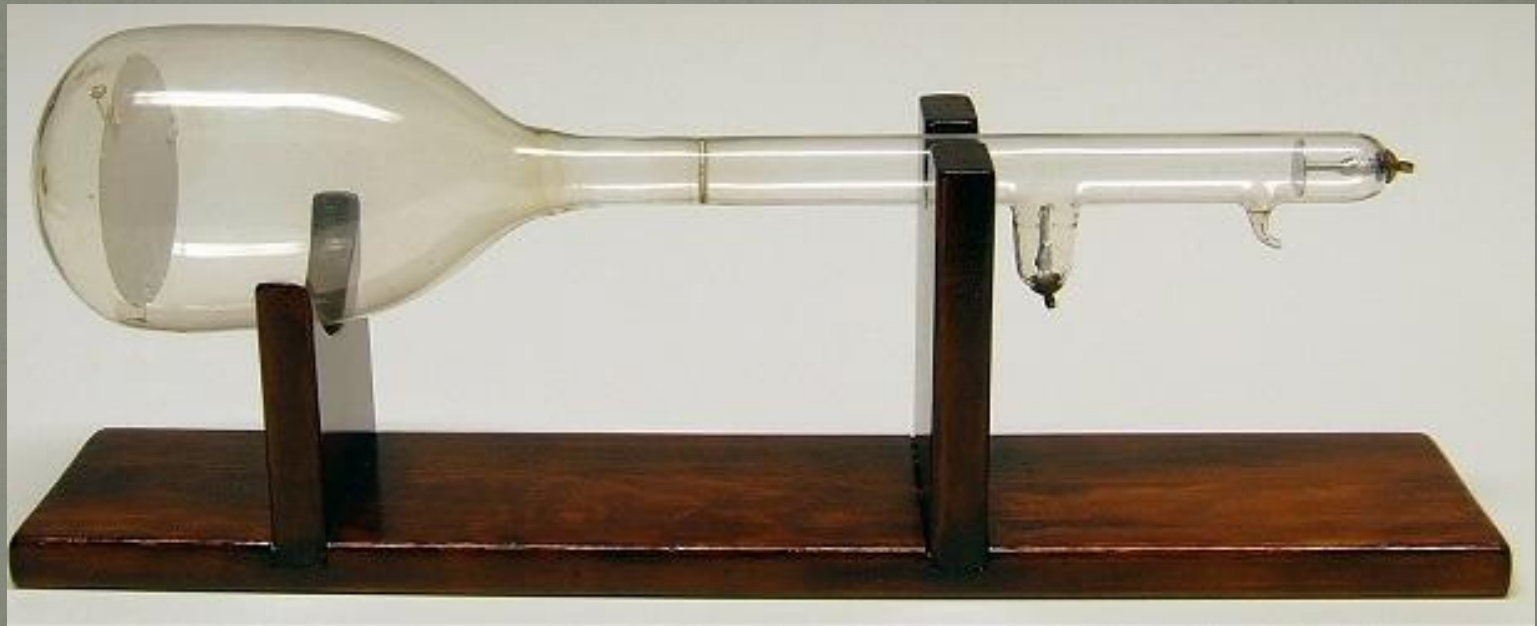
The second step is addition of electrodes.



Crookes tube



Vacuum vessel of Geissler and Plucker

# Braun tube

The first image, using a cathode ray tube (CRT), was made by *Karl Ferdinand Braun.* Many scientists improved CRT afterwards.
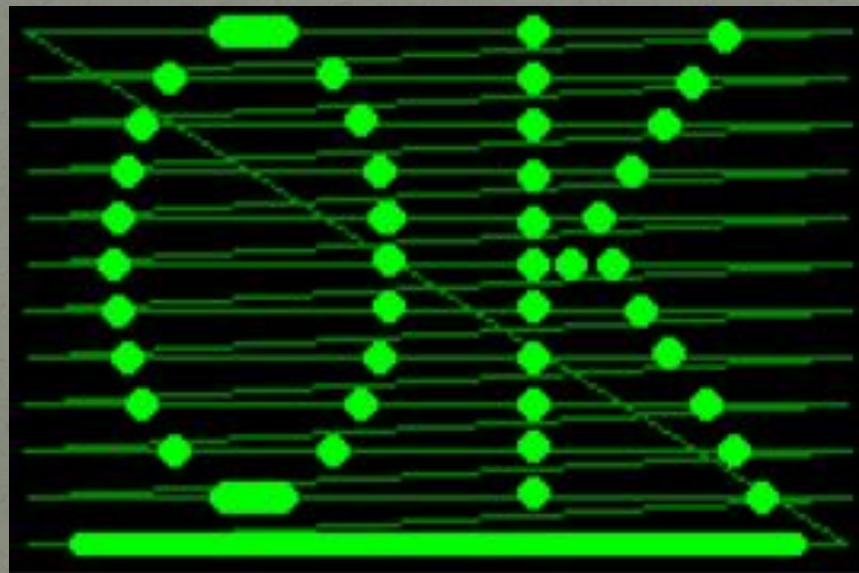
# Vector kinescope

In 1907 Russian physicist Boris Rosing developed a device, based on Braun tube, capable to reproduce a moving image.



Output of vector kinescope

# Raster kinescope

Raster kinescope allows to display complex images. The first electronic television kinescopes were raster, but first computer monitors used vector kinescopes.



Output of raster kinescope

# Color kinescope

Color kinescope has been developed in the USA in 1950. The first color TV was released in the USA in 1954.

# CRT and computer

For the first time CRT was used to display graphics on the "EDSAC" computer in 1950.

# Liquid-crystal display

+ small size and weight

+ no visible flicker, interference from magnetic fields

+ no problems with image geometry and clarity

+ low power consumption

- can display a clear image only with one ("normal")
  resolution

- low contrast and depth of black color

- dependence of the contrast on the viewing angle

- problem of defective pixels

# Plasma display

+ high contrast

+ color depth

+ stable uniformity of black and white colors

+ long life (30 years)

- high energy consumption

- large pixels

# Organic light-emitting dispaly

+ small size and weight

+ low power consumption

+ ability to create flexible screens

+ no need for backlighting

+ wide viewing angles

+ high contrast

- short life

- dearness

# Laser video display

+ high refresh rate (120 - 240 Hz)

+ almost unlimited life time

+ pixels are not susceptible to degradation

+ very low power consumption

- greater thickness (in comparison with LCD)

# Near future

- Three-dimensional images without special glasses
- Projector, which can create an image of high definition and contrast just a few centimeters from the surface
- Bendable tablets
- Transparent monitors

# Thanks for watching!