

Quingbre Dotapo

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Elect Telect

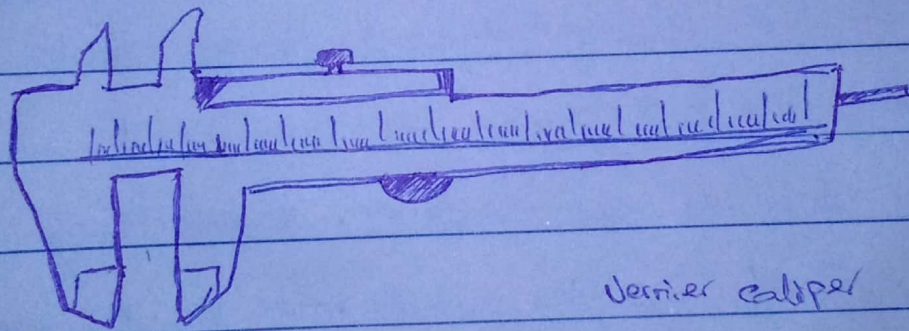
1) Sensors are devices that measures physical input from its environment and converts it into data that can be interpreted by either a human or a machine. Most sensors are electronic (the data is converted into electronic data), but some are more simple, such as a glass thermometer, which presents visual data. Sensors (biomedical sensors) take signals representing biomedical variables and usually convert them into an electrical or optical signal. As such the biomedical sensor serves as an interface between the biological and electronic system. Example of biomedical sensors are temperature sensors, humidity sensor, light sensor, Infrared sensor, touch sensor.

Actuators: This is a component of a machine that is responsible for moving and controlling a mechanism or system, for example by opening a valve. They are used in cardiac devices, lab-on-a-chip, and also

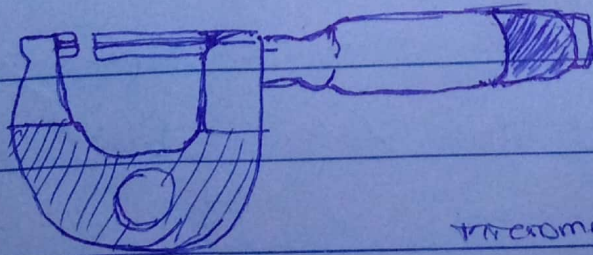
used in surgical tools.

(2)

A measuring instrument is a device to measure a physical quantity. In the physical sciences, quality assurance and engineering, measurement is the activity of obtaining and comparing physical quantities of real world objects and events. examples of measuring instruments



vernier caliper



micrometer

↓ Vernier Caliper is widely used linear measurement instrument with a least count of 0.02mm. It's used to measure

Linear dimensions like length, diameter, depth.

10) Micrometer: External micrometer is also known as outside micrometer or external micrometer. It's used to check outside diameter of circle by the means of accuracy of 0.01mm or up to 0.001mm.

3) Case studies of two medical measurement instruments

1) Stethoscope: The stethoscope is an acoustic medical device for auscultation, or listening to internal sounds of an animal or human body. It typically has a small disc-shaped resonator that's placed against the skin, and one or two tubes connected to two ear pieces. A stethoscope can be used to listen to the sounds made by the heart, lungs, or intestines, as well as blood flow in arteries and veins. In combination with a manual sphygmomanometer, it's commonly used when measuring blood pressure.

11) Thermometer: This is a device that measures temperature or a temperature gradient (the degree of hotness or coldness of an object). A thermometer has two

Important elements:

- (1) A temperature sensor (e.g. the bulb of a mercury-in-glass thermometer or the pyrometric sensor in an infrared thermometer) in which some change occurs with a change in temperature
- (2) Some means of converting this change ^{into} ~~occurs~~ a numerical value (e.g. the visible scale that is marked on a mercury-in-glass thermometer or the digital readout on an infrared model). Thermometers are widely used in technology and industry to monitor processes, in meteorology, in medicine, and in scientific research.