DIFFERENT SENSORS IN HEALTHCARE AND AGRICULTURE

1. Sensors in Smart Healthcare ⚕

These sensors are primarily used in **wearable devices, remote patient monitoring (RPM),** and advanced **medical equipment** to collect real-time physiological data.

Sensor Type	Function
Heart Rate/Pulse Sensor	Measures the electrical activity or volume changes of the heart (photoplethysmography - PPG).
SpO2 Sensor (Pulse Oximeter)	Measures the **oxygen saturation** level in the blood.
Blood Glucose Biosensor	Measures the concentration of **glucose** in the blood or interstitial fluid.

Inertial Measurement Unit (IMU)	Combines **accelerometers** and **gyroscopes** to measure motion, orientation, and velocity.
Body Temperature Sensor	Detects changes in body temperature, often placed on the skin as a wearable patch.
Blood Pressure (BP) Sensor	Measures arterial blood pressure, often using oscillometric technology.

Example Picture: Blood Glucose Biosensor

This picture shows an example of a blood glucose biosensor system, typically used for continuous monitoring:

blood glucose biosensor

2. Sensors in Smart Agriculture 🌾

These sensors form the core of **Precision Agriculture** (or Smart Farming) by collecting environmental and soil data to optimize resource use and maximize crop yield.

Sensor Type	Function
Soil Moisture Sensor	Measures the volumetric **water content** in the soil.
Air Temperature & Humidity Sensor	Measures the ambient air temperature and relative humidity, often inside greenhouses or at weather stations.
Soil pH Sensor	Measures the **acidity or alkalinity** of the soil.

Light Sensor (or Solar Radiation)	Measures the **intensity of sunlight** or photosynthetic active radiation (PAR).
Gas Sensor	Detects and measures concentrations of gasses like **CO2**, methane, or volatile organic compounds (VOCs).
Rain Gauge/Flow Meter	Measures **precipitation** (rain gauge) or water used in an irrigation system (flow meter).

Example Picture: Soil Moisture Sensor

This picture shows an example of a soil moisture sensor probe that is inserted into the ground: