Experiment-2

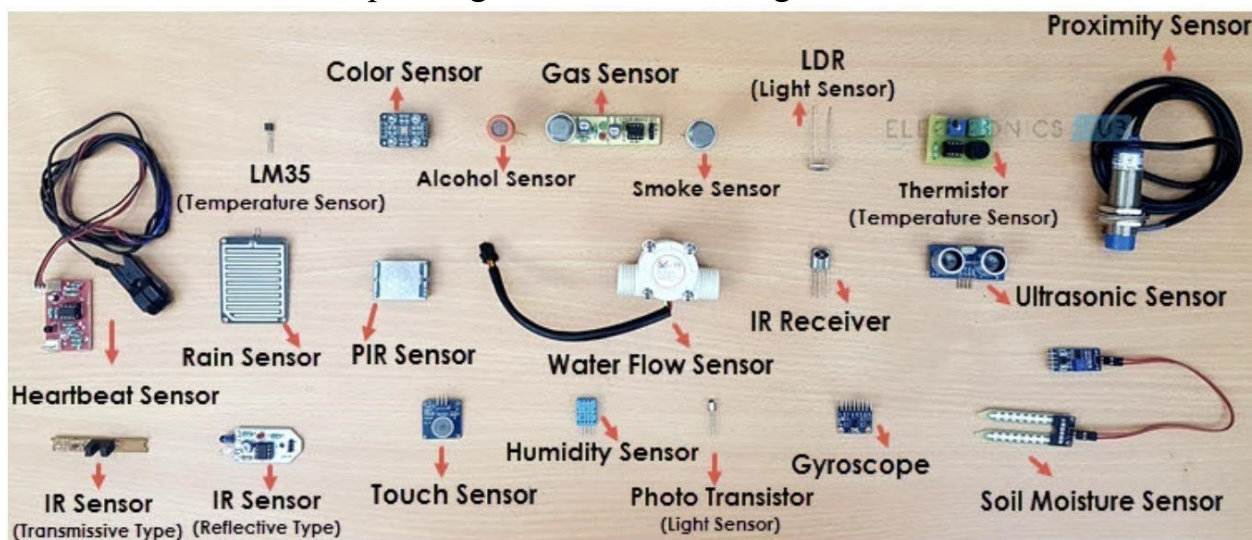|	
NAME: Anshuman Singh	UID: 20BCS2665
SECTION: 902/A	BRANCH: B.E CSE
SUBJECT: IOT LAB	**Subject Code:** 20CSP-358

Aim: Identification of different sensors used in IoT applications.

Objective:

1. To study hardwares related to IoT.

2. to understand and identify different sensors used in IoT.

Sensors:

The sensors are defined as a machine, module, or a device that detect changes in the environment. The sensors transfer those changes to the electronic devices in the form of a signal. A sensor and electronic devices always work together. The output signal is easily readable by humans. Nowadays, Sensors are used in daily lives. For example, controlling the brightness of the lamp by touching its base, etc. The use of sensors is expanding with new technologies.

1. **Temperature Sensor:**
   A device used to measure amount of heat energy that allows to detect a physical change in temperature from a particular source and converts the data for a device or user, is known as a Temperature Sensor.

2. **Proximity Sensors:** A device that detects the presence or absence of a nearby object, or properties of that object, and converts it into signal which can be easily read by user or a simple electronic instrument without getting in contact with them.

3. **Pressure Sensor:** A pressure sensor is a device that senses pressure and converts it into an electric signal. Here, the amount depends upon the level of pressure applied. There are plenty of devices that rely on liquid or other forms of pressure. These sensors make it possible to create IoT systems that monitor systems and devices that are pressure propelled.

4. **Water Quality Sensor:**
   Water quality sensors are used to detect the water quality and Ion monitoring primarily in water distribution systems. Water is practically used everywhere. These sensors play an important role as they monitor

the quality of water for different purposes. They are used in a variety of industries.

5. **Chemical Sensors:**

   Chemical sensors are applied in a number of different industries. Their goal is to indicate changes in liquid or to find out air chemical changes. They play an important role in bigger cities, where it is necessary to track changes and protect the population.

6. **Gas Sensors:**

   Gas sensors are similar to the chemical ones but are specifically used to monitor changes of the air quality and detect the presence of various gases. Like chemical sensors, they are used in numerous industries such as manufacturing, agriculture and health and used for air quality monitoring, detection of toxic or combustible gas, hazardous gas monitoring in coal mines, oil & gas industries, chemical laboratory research, manufacturing – paints, plastics, rubber, pharmaceutical & petrochemical etc.

7. **Smoke sensor:**

A   smoke sensor is a device that senses smoke (airborne particulates & gases), and its level. They have been in use for a long period of time. However, with the development of IoT, They are now even more effective, as they are plugged into a system that immediately notifies the user about any problem that occurs in different industries. Smoke sensors are extensively used by the manufacturing industry, HVAC, buildings, and accommodation infra to detect fire and gas incidences.


8. **IR Sensor:**

An infrared sensor is a sensor that is used to sense certain characteristics of its surroundings by either emitting or detecting infrared radiation. It is also capable of measuring the heat being emitted by objects. They are now used in a variety of IoT projects built by IoT development companies, especially in Healthcare as they make monitoring blood flow and blood pressure simple. They are even used in a wide array of regular smart devices such as smartwatches and smartphones as well.
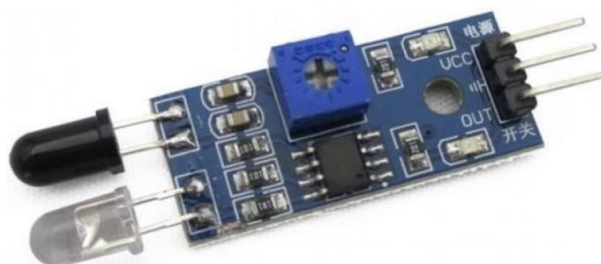
9. Level Sensor

A   sensor which is used to determine the level or amount of fluids, liquids or other substances that flow in an open or closed system is called Level sensor. Like IR sensors, level sensors are present in a wide array of industries. They are primarily known for measuring fuel levels, but they are also used in businesses that work with liquid.
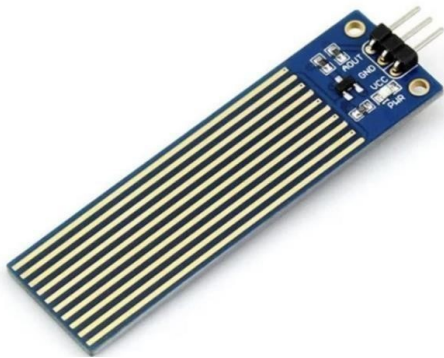
10. Image Sensor:

Image sensors are instruments which are used to convert optical images into electronic signals for displaying or storing files electronically. The major use of image sensors is found in digital cameras & modules, medical imaging and night vision equipment, thermal imaging devices, radar, sonar, media houses, and Biometric & IRIS devices.
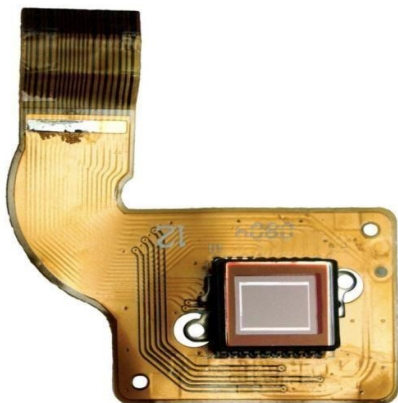
Learning outcomes (What I have learnt):

- Hardwares used in IOT
- Different Sensors
- Applications of different sensors

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.	**Student Performance (Conduct of experiment) objectives/Outcomes.**		12
2.	**Viva Voce**		10
3.	**Submission of Work Sheet (Record)**		8
	Total		30