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| **TEAM ID** | **PNT2022TMID48980** |
| **PROJECT TITLE** | **IoT Based Safety Gadget for Child Safety Monitoring & Notification** |

**IoT Software**

IoT software addresses areas of networking and action through platforms, partner systems, and middleware.

The individual and master applications are responsible for:

* Data Collection
* Application
* Process Extension

**1. Data Collection**

Devices and technology connected over IoT can monitor and measure data in real-time. This data can offer valuable insight to save time, money and energy.

* Medical Data – Heartbeat, Blood Pressure, Sugar Level, etc.
* Educational Data – Attendance and Learning.
* Location – Traffic Congestion.
* Agriculture data – Weather and Soil Information.

**Process IoT Data**

A massive amount of data is generated by sensors and devices; it should be processed Before information is passed to the user. As we can understand that data doesn’t come in one format, we should perform some steps before we analyze the data.

* Transform the data to a uniform format, ensure that format is compatible with your application.
* Store and create a backup of newly transformed data.
* Filter repeated or unwanted data to improve accuracy.

**IoT Data Analytics**

There are various types of data generated [by IoT devices](https://www.educba.com/iot-devices/); we must apply analysis tools to handle this data. Valuable information is collected from a massive amount of data that will be used to improve applications and business processes.

Types of analytics we can apply to IoT data:

**i. Prescriptive Analytics**

* Descriptive analytics will provide insight into what has happened.
* Predictive analytics will predict and forecast what might happen, will determine the best solutions among choices.

**ii. Spatial Analytics**

It is used to find hidden patterns and relationships from the IoT data, combining geospatial analytics, business data, and operational data. Industrial, travel, and agriculture companies enrich data from IoT sensors with business applications and geographic data from GIS.

**iii. Streaming Analytics**

It refers to the data processing of real-time data collected from IoT devices. We can use real-time data to analyze urgent situations and provide an immediate response.

For example – Traffic analysis and tracking of financial transactions.

**iv. Time Series Analytics**

Observing data points over time with proper transform may reveal valuable information about system trends and behaviour. For example, Health-monitoring and Weather-monitoring platforms are most benefited from time-series analytics.

IoT data is everywhere; it is in our homes, in our cars, in our offices. IoT devices generate a massive amount of data. If we collect, process, and analyze data, consumers or organizations will gain valuable insight. It will be helpful to predict future decisions and help them grow.