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**Q. Identify at least 3 Practical robot applications of Fundamental Datatypes and Collection Datatypes?**

**Fundamental Datatypes**

* The fundamental datatypes can be used to store sensor reading values. Usually, most sensors give a digital signal that falls in a range. This value can be stored and saved for processing.
* Different sensors are connected to different ports and locations in the robot. These locations and ports can be selected by using fundamental datatypes to access these sensor readings from the controller.
* Robotics uses comparison, converting and interacting with the environment through measurements. All these measurements and comparison requires basic datatypes to

**Collection Datatypes**

* Collection datatypes like array and matrices can be used to store position and vectors of the robot.
* When multiple sensors are integrated together a collection of datatypes can be used to store the collection of similar sensor data. Since all data are of similar datatype, it will be easier to manipulate, read and access all these data from the controller.
* A Matrix of data can also be used to store Time Series data, where each data is also tagged with corresponding time so that the time can be analysed. This helps to derive meta data like rate of change and other information.

**2. Identify the Importance of variables in the field of robotics.**

* Most robots that interact with an environment that is unknown deals with a lot of environmental data. For example, a robot moving in an unknown location will have know previous knowledge. To map the area, the robot requires many sensors to read, identify and process the environment. Eg: Distances from various points in the room from a LIDAR sensor. How much distance the robot has travelled. All these data are variable and do not have fixed value. Hence variables are important in the field of robotics.

In short, variables are required to store and remember the variable environment that the robot is in.