Practical No.1: Interpret the given microcontroller trainers, with the microcontrollers used in the board and list the features.

I   Practical Significance

Various microcontrollers are being used in the developments of the embedded systems . Students must be aware of these types of the controllers and the boards used for the same. This practical will be helpful for the students to handle the various microcontrollers and use the same for the specific applications.
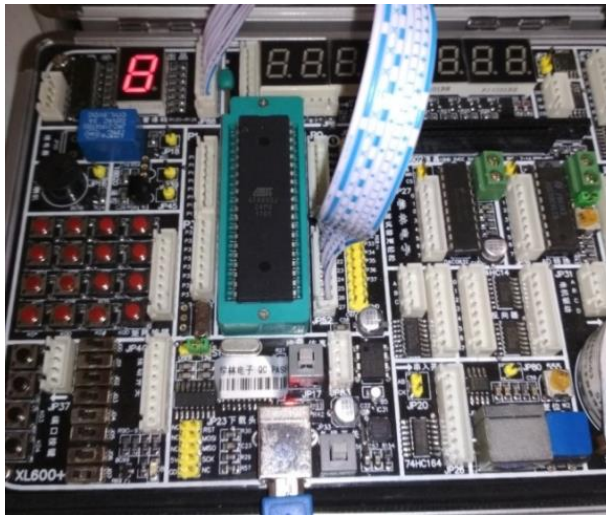
II   Competency and Practical Skills

Interpret the given microcontroller trainers, with the microcontrollers used in the board and list the features

III   Relevant Affective domain related Outcome(s)

- Handle IC and equipment carefully.
- Follow safe practices.

IV   Minimum Theoretical Background

Introduction: Arduino is an open-source hardware and software company, project and user community that designs and manufactures single-board microcontrollers and microcontroller kits for building digital devices. Its products are licensed under the GNU Lesser General Public License (LGPL) or the GNU General Public License (GPL),permitting the manufacture of Arduino boards and software distribution by anyone. Arduino boards are available commercially in preassembled form or as do-it-yourself (DIY) kits.

Arduino board designs use a variety of microprocessors and controllers. The boards are equipped with sets of digital and analog input/output (I/O) pins that may be interfaced to various expansion boards or breadboards (shields) and other circuits. The boards feature serial communications interfaces, including Universal Serial Bus (USB) on some models, which are also used for loading programs from personal computers. The microcontrollers can be programmed

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using C and C++ programming languages. In addition to using traditional compiler toolchains, the Arduino project provides an integrated development environment (IDE) based on the Processing language project

DIAGRAM : --

V   **Resources Required: Microcontroller trainer kits , with 8051, Arduino, PIC .**

VI   **Precautions to be Followed: Create the separate directory with specific name.**

VII   **Actual procedure followed: Write the details of the trainer kits available in the laboratory .**

        Use separate page

VIII   **Interpretation of results (Interpret the difference between 8051 microcontroller trainer board and Arduino, trainer board**

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IX Conclusions

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X   **Practical Related Questions**

1. State the controllers used in the trainer boards
2. Compare the microcontrollers in trainer boards.
3. Describe various pin used on Arduino trainers boards.
4. List the features of Arduino ID features

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[Space for answer]

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