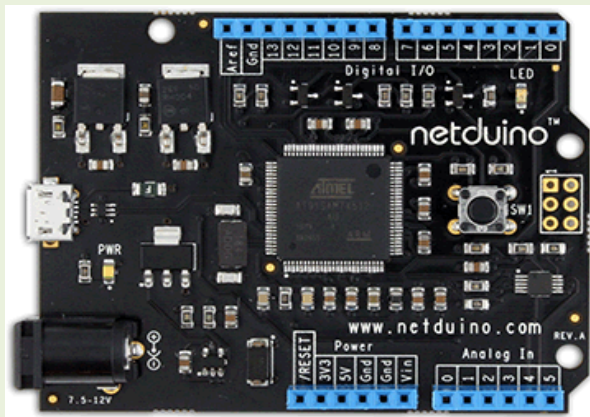




**SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY**

EMBEDDED SYSTEM LABORATORY

Department of Mechatronics Engineering



LAB SUPERVISOR: ENGR. SARMAH HAMEED

Objectives: The objective of this course is to teach students design and interfacing of microcontroller-based embedded systems. High-level languages are used to interface the microcontrollers to various applications. There are extensive hands-on labs/projects. Embedded system for sensor applications will be introduced. GUI using C# will be introduced. Students will be expected to develop independence and learn much of the material on their own.

EXPERIMENTS:

- LED Display Experiment
- Traffic Signal Control Experiment
- FND Display Experiment
- Text LCD Display Experiment
- ADC Experiment
- DAC Experiment
- Sound Experiment
- DC Motor Control Experiment
- Stepper Motor Control Experiment
- Key Matrix Experiment
- Rotary Switch Experiment
- SPI Communication Experiment
- I2C Communication Experiment
- Digital Clock (DS1302) Experiment
- Digital Thermometer (DS1620) Experiment
- UART Communication Experiment
- 32X16 Dot Matrix Display Experiment

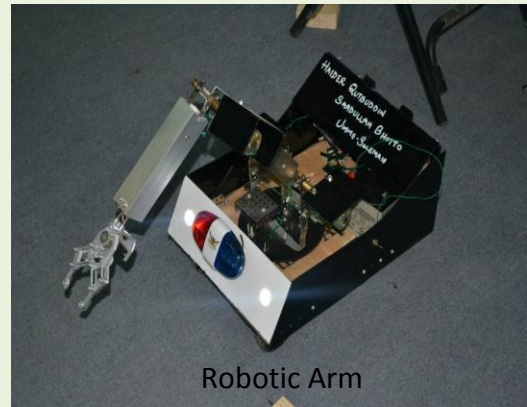


ARDUINO

Arduino is an open-source electronics prototyping platform based on flexible, easy-to-use hardware and software. It's intended for artists, designers, hobbyists, and anyone interested in creating interactive objects or environments.

Student after getting training from MIDAS trainers experience their learning skills on ARDUINO board where they make various application based projects. Such as:

- Android Platform based 3-Axis Robotic Arm
- Unmanned Vehicle
- Android based Home Automation System
- Kinect controlled car
- Labview based GUI for temperature controller
- Labview based GUI for motor direction controller



Robotic Arm



Kinect Controlled Car



Unmanned Vehicle

Inventory list: Embedded System Laboratory

S. No.	Equipment	Qty
1	Micro Controller Base Unit	5
2	AVR module : ATMEGA128	5
3	8051 module: AT89S52, AT89S8253	5
4	PIC module : 16F877, 18F452	5
5	Arduino MEGA 2560	10
6	Netduino	10
7	Desktop PC's core I5	12

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