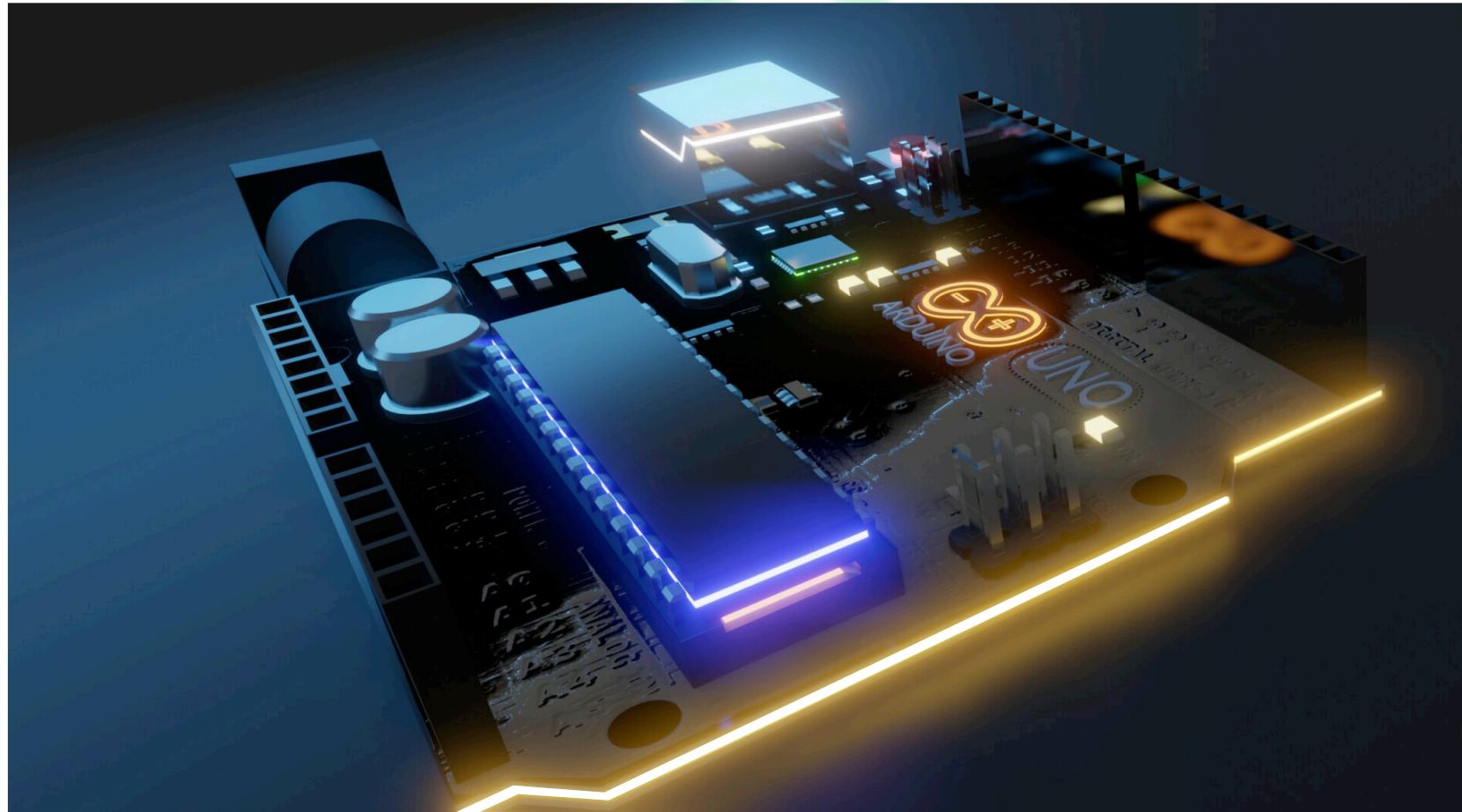
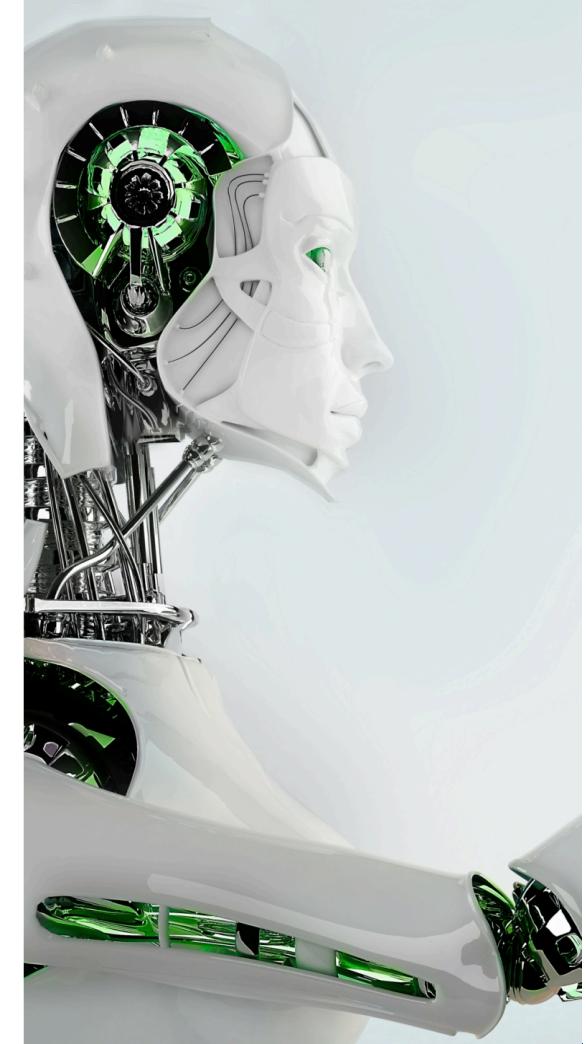


Mechatronics Bootcamp: A Gateway to Emerging Technologies



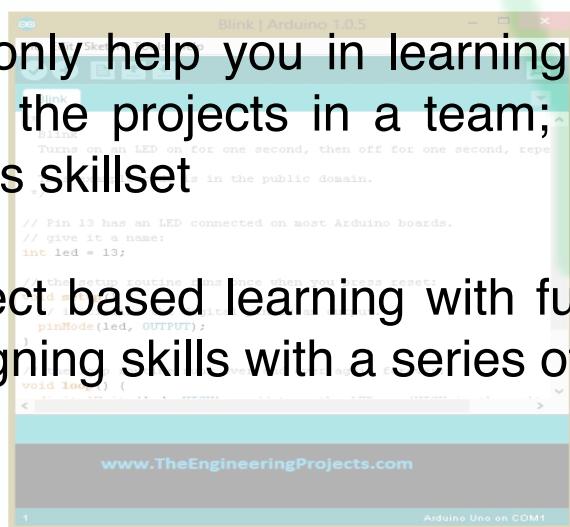
Overview

This course is a combination of lectures, lab tasks, assessments, and projects related to the fundamental concepts of Mechatronics. It is curated for students with a curious mind and a keen interest in multidisciplinary engineering fields and wish to explore new technologies. This Bootcamp is all about getting familiar with the basics of programming, electrical circuit design, 3D modelling & prototyping. Therefore we focused this emerging talent training program on developing these skills by employing hands-on experience and project-based learning.



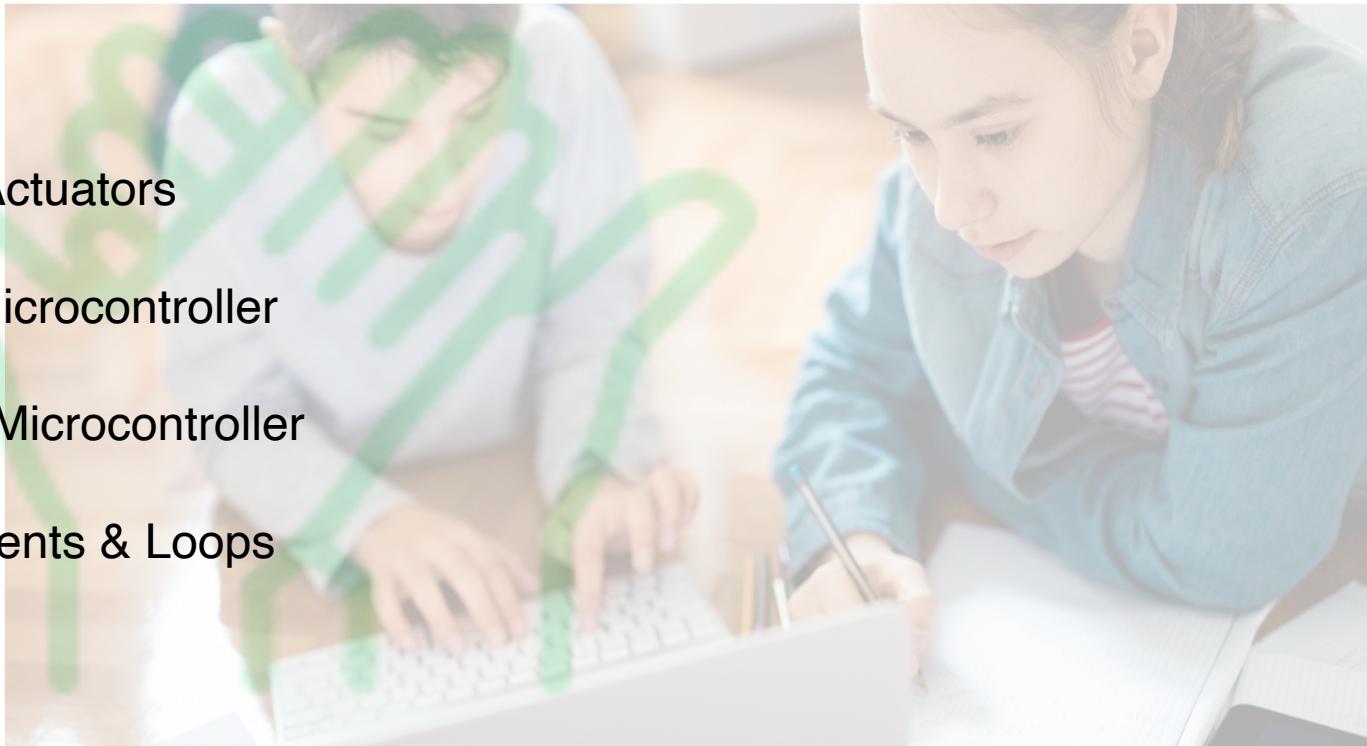
This Course

- Improve your knowledge and vision on working with microcontroller (Arduino). Fundamental and core concepts of programming
- Build your ability to analyse and innovate. You will work on different projects, diagnose and debug their errors. Your analytical skills will be enhanced which cannot be developed by reading books only
- Not only help you in learning the core concepts and technologies but as you build the projects in a team; you will also develop and improve your STEAM Minds skillset
- Project based learning with fun atmosphere will enhance your programming & designing skills with a series of assessments



What You'll Learn

- Introduction to Arduino Board
- Use of Variables
- Knowledge of Sensors & Actuators
- Sensors Interfacing with Microcontroller
- Actuators Interfacing with Microcontroller
- Use of Conditional Statements & Loops
- Functions & their usage
- Project Based Learning
- STEAM Minds



What We Are Aiming For

- Quick learning in a smart way
- “Intelligence, Innovate, Inspire”
- Creating fun learning atmosphere
- Enhancement of programming skills
- Building small projects with smart approach
- Thinking out of the box
- Transforming conventional STEAM education to a project based learning & creativity



Who You'll Meet

- Highly qualified Engineering faculty having a vast theoretical knowledge and massive hands-on experience
- Experts in STEM & STEAM education systems
- Educationist that believe on project based learning

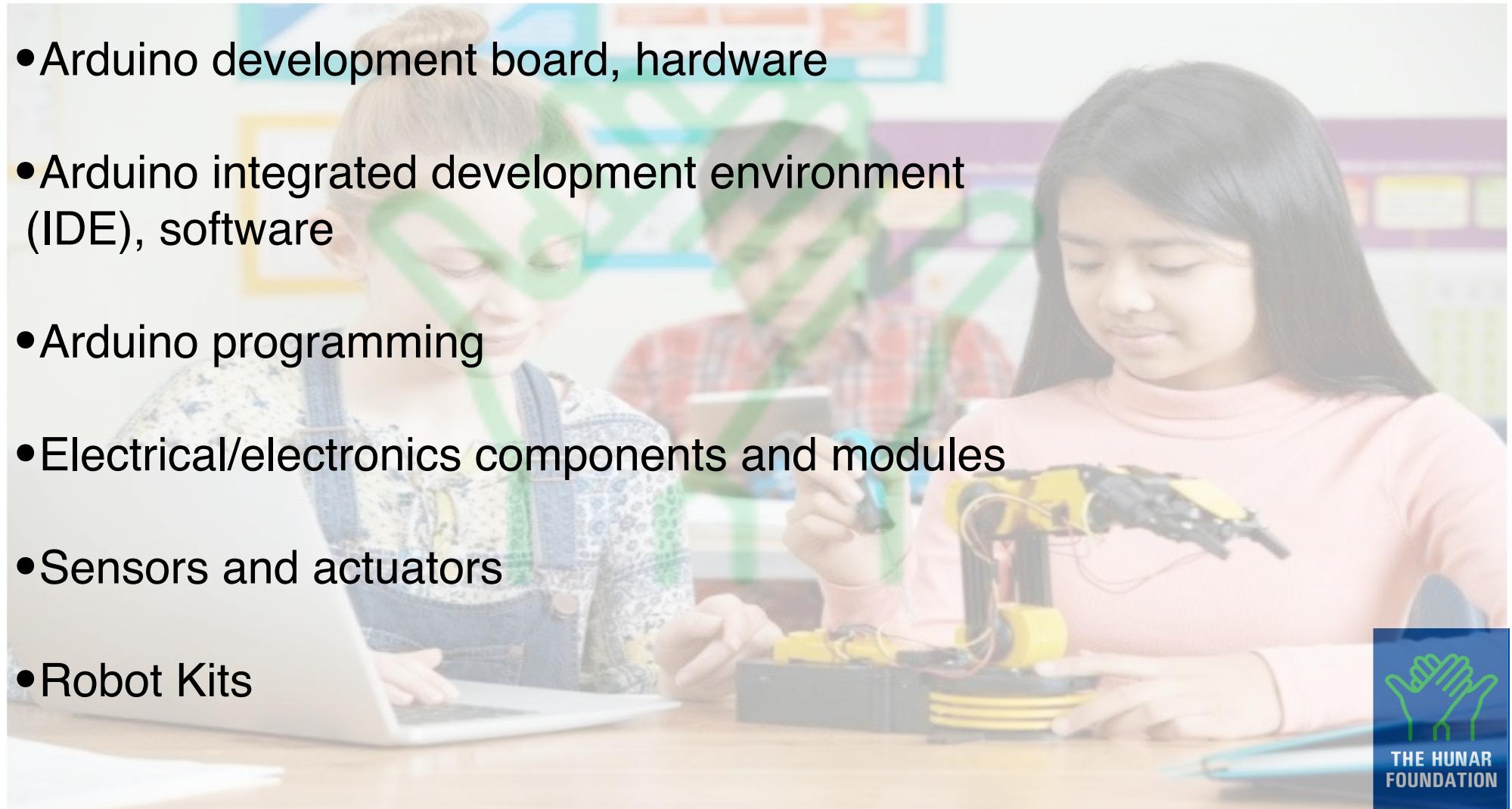
What You'll See

- A series of labs and projects lectures, with detailed descriptions
- Proper assessment and challenges
- State of the art labs with fun learning environment



What You'll Use

- Arduino development board, hardware
- Arduino integrated development environment (IDE), software
- Arduino programming
- Electrical/electronics components and modules
- Sensors and actuators
- Robot Kits



Course Structure

Week 01

- Fundamentals of Programming and Arduino
 - ✓ Introduction to Arduino Board
 - ✓ Basic interface of coding and Arduino IDE
 - ✓ Blinking of LED - Project

Week 02

- Libraries, Conditional Statements and Mini Game
 - ✓ Concept of adding library
 - ✓ Use of Functions
 - ✓ Concept of digitalRead & Project - Pong

Week 03

- Sensors Interfacing with Arduino
 - ✓ Interfacing of Piezo sensor
 - ✓ Use of Timer
 - ✓ Project - Knock Knock

Week 04

- Grand Project - Line Follower Robot
 - ✓ Interfacing of actuators with Arduino
 - ✓ Application of IR sensor
 - ✓ Project - LFR



Join Us

- To be a smart thinker
- To be a Project handler
- To be a quick learner
- To be a team player
- To be a troubleshooter
- To enhance your Vision



Course Instructor

Hafiz Mansoor Ahmed
Mechatronics Engineer, SZABIST, Karachi

He is the Instructor for the course “Mechatronics Bootcamp: A Gateway to Emerging Technologies” in the department of Emerging technologies at THF. His areas of expertise are Mechatronics system design, project based learning, research and development, STEM & STEAM education, designing and prototyping. Before joining THF, he was working in RapidTack as a Design Engineer and Instructor of Robotics/ Engineering Team lead at RoboticsWorld.

