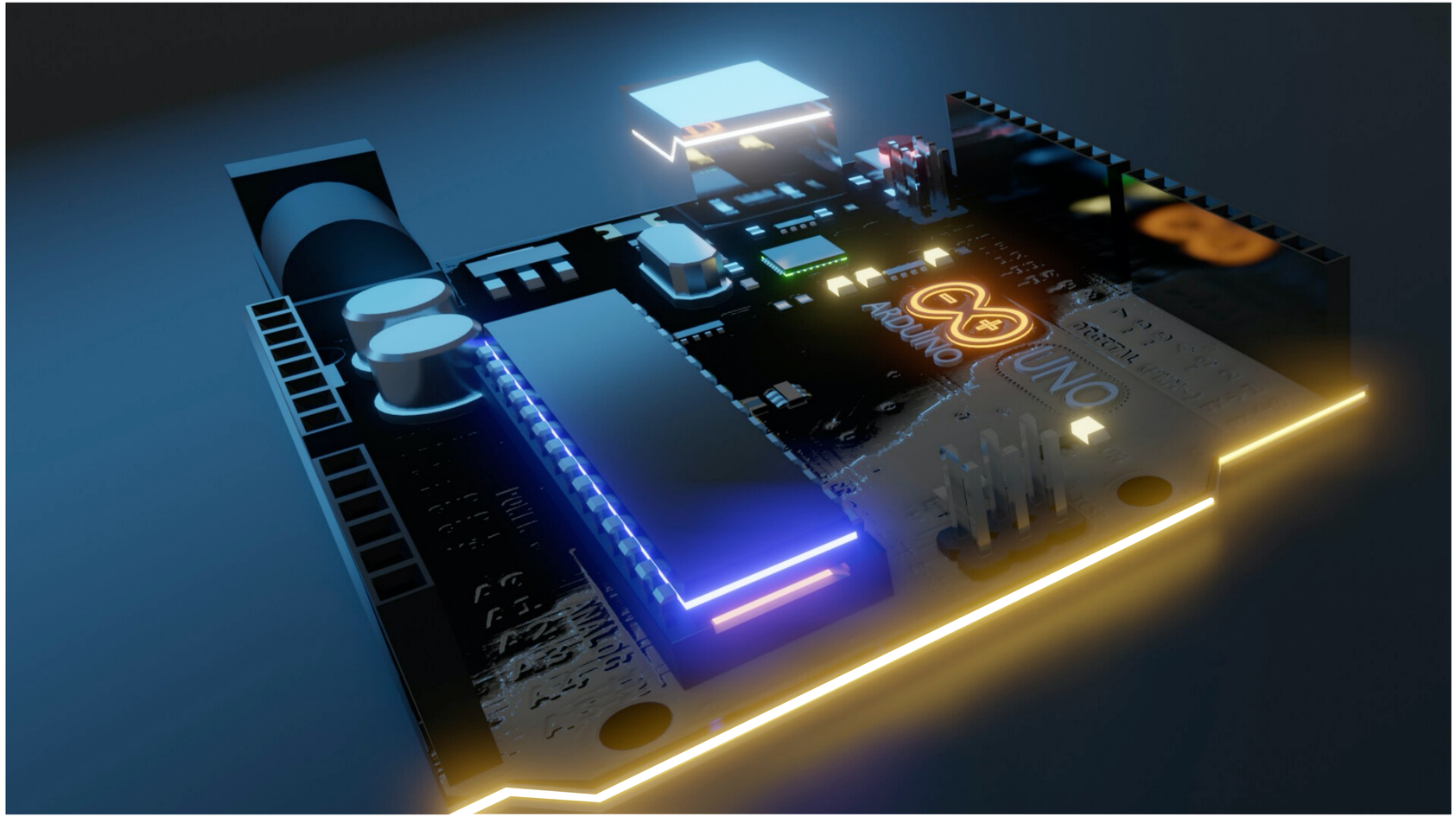
Mechatronics Bootcamp: A Gateway to Emerging Technologies



Introduction

Mechatronics Bootcamp: A Gateway to Emerging Technologies is the collection of labs and project based course. This course is especially designed for the students with STEAM Minds and want to explore & learn new things. The course emphasise on project based learning & getting familiar with Arduino coding/ programming it is not easy as it seems and the only way to develop skills on this domain is to practice and build innovative projects with your own hands. Mechatronics Bootcamp is an emerging talent training program with STEAM & project based learning & will provide you the necessary exposure, massive hand-on training and time to develop these skillsets.

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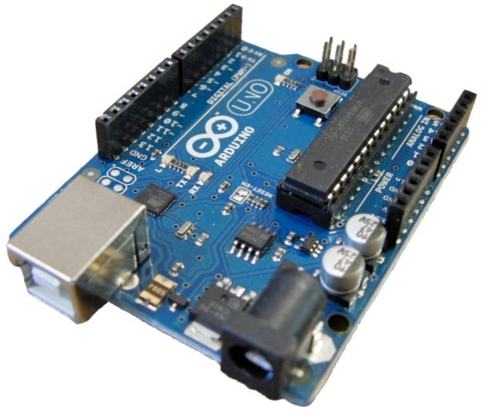
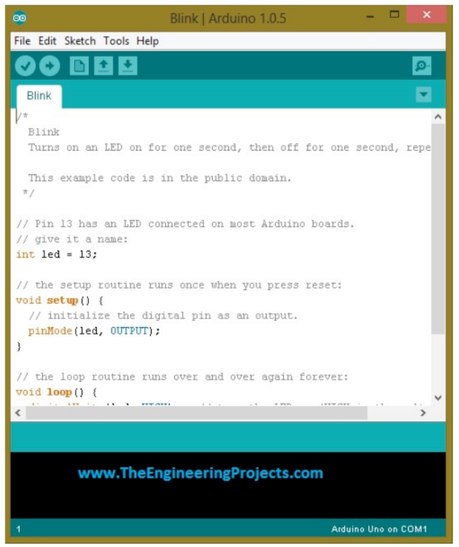
This Course

- 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



Arduino



Arduino IDE Programming

Project Based Learning

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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

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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

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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 1

Fundamentals of Arduino & Programming

- Introduction to Arduino Board
- Basic interface of coding & Arduino IDE
- Blinking of LED - Project

Week 2

Libraries, conditional statement & mini game

- Concept of adding library
- Use of Function
- Concept of digitalRead & Project - Pong

Week 3

Sensors Interfacing with Arduino

- Interfacing of Piezo sensor
- Use of Timer
- Project - Knock Knock

Week 4

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

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