



**Mindstask**  
PART OF A CREATIVE PROCESS

# Embedded System and IOT Services

## INDUSRIES WE SERVE

Industrial Electronics | Consumer Electronics |  
Medical Devices | Automotive | Home Automation |  
Lighting | Smart Metering & Sensors

**Microcontrollers**

**Prototyping**

**Gateway**

**Peripheral**

**Wireless Protocol**

**Cloud Computing**

# Embedded System & IoT Services

## Microcontrollers

- Microcontroller selection and evaluation
- Hardware design
- Testing and validation
- Firmware development
- Consulting
- Prototyping

## Peripheral

- On-chip peripherals programming
- Off-chip peripherals interfacing and programming
- Sensor interfacing
- Actuator interfacing

## Wireless Communication

- Wireless communication protocol
- Bluetooth
- ZigBee
- WiFi
- 2.4 Ghz radio(like NRF24I01)
- GSM and GPRS

## Prototyping

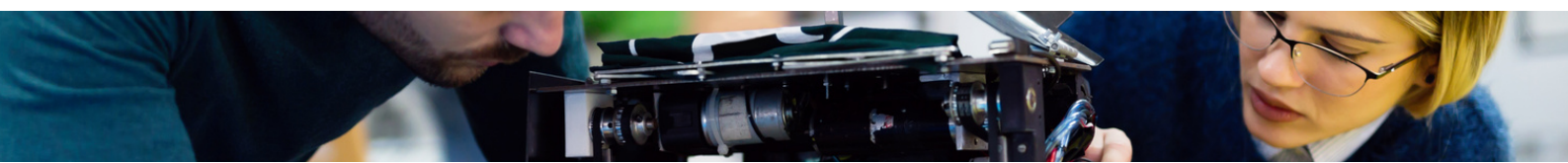
- Firmware design and development
- Firmware testing and debugging
- Firmware documentation
- Firmware migration
- Firmware updates

## Gateway

- Industrial gateways
- Commercial gateways
- Home gateways
- Mobile gateways

## Cloud Computing

- Data storage
- Data Processing
- Machine learning
- Security
- Remote management and monitoring



# Methodology to develop embedded system and IOT based Product



## DEFINE THE REQUIREMENTS

Clearly define the requirements of the embedded system or IoT product, including the intended purpose, functionality, performance, and user interface.



## CHOOSE THE PLATFORM

Identify the hardware platform and software stack that will be used for the project. This may include selecting a microcontroller, sensor, wireless communication module, and operating system.



## DESIGN SYSTEM ARCHITECTURE

Develop a high-level system architecture that defines the major subsystems and their interconnectivity.



## DEVELOP THE SOFTWARE

Develop the software for the embedded system or IoT product, including the firmware, application software, and user interface.



## SIMULATION OF HARDWARE ON SOFTWARE

Simulation of hardware on software simulators for embedded systems is a technique used to test and debug embedded software without the need for physical hardware. This can be done by creating a model of the hardware in the software and then simulating the behavior of the hardware & software together.



## HARDWARE DESIGN & DEVELOPMENT

Designing the schematic, Designing the PCB layout, Manufacturing the PCB, Testing the hardware, Debugging the hardware



## PROTOTYPE & TESTING

Create a functional prototype of the system and conduct thorough testing to ensure that it meets the requirements and specifications.



## REFINEMENT & OPTIMIZATION

Analyze the test results and refine the system as needed to optimize performance and functionality.



**DELIVER TO CUSTOMER**





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