Introduction to embedded systems

Embedded systems, microprocessors and microcontrollers

Daniel Giovanni Martínez Sandoval

Centro Universitario de Ciencias Exactas e Ingenierías Universidad de Guadalajara

17266 - Programación de Sistemas Embebidos - 2024B



Table of Contents

1 What is an embedded system?



Table of Contents

1 What is an embedded system?



Embedded systems are a little bit hard to define. This is because the applications for embedded systems has changed over time and has become very broad.



Embedded systems are a little bit hard to define. This is because the applications for embedded systems has changed over time and has become very broad.

If we say that embedded systems are computer systems that make part of bigger electronic or mechanical systems, and that they have a dedicated function or purpose, how many devices come to your mind?







Some areas full of embedded systems, in fact, are:

Consumer Electronics



- Consumer Electronics
- Home Appliances



- Consumer Electronics
- Home Appliances
- Automotive



- Consumer Electronics
- Home Appliances
- Automotive
- Industrial Applications



- Consumer Electronics
- Home Appliances
- Automotive
- Industrial Applications
- Medical Devices



- Consumer Electronics
- Home Appliances
- Automotive
- Industrial Applications
- Medical Devices
- Telecommunications



Some areas full of embedded systems, in fact, are:

- Consumer Electronics
- Home Appliances
- Automotive
- Industrial Applications
- Medical Devices
- Telecommunications

Aerospace and Defense



- Consumer Electronics
- Home Appliances
- Automotive
- Industrial Applications
- Medical Devices
- Telecommunications

- Aerospace and Defense
- Office Automation



- Consumer Electronics
- Home Appliances
- Automotive
- Industrial Applications
- Medical Devices
- Telecommunications

- Aerospace and Defense
- Office Automation
- Security Systems



- Consumer Electronics
- Home Appliances
- Automotive
- Industrial Applications
- Medical Devices
- Telecommunications

- Aerospace and Defense
- Office Automation
- Security Systems
- Smart Home Devices



- Consumer Electronics
- Home Appliances
- Automotive
- Industrial Applications
- Medical Devices
- Telecommunications

- Aerospace and Defense
- Office Automation
- Security Systems
- Smart Home Devices
- Wearable Devices



Some of this areas contain devices that can defy the definition we were using.



Some of this areas contain devices that can defy the definition we were using.

Think like this: if embedded systems have a dedicated function or purpose, is a cellphone or a tablet an embedded system?



Some of this areas contain devices that can defy the definition we were using.

Think like this: if embedded systems have a dedicated function or purpose, is a cellphone or a tablet an embedded system?

They may fundamentally have components that many other embedded systems have, but they, in contrast to how themselves in the past, have not just the purpose of communicating people via voice calls or messages, they are also entretainment devices, and have many more functionalities.