

Universidade Federal de Alagoas
Faculdade de Economia, Administração e Contabilidade

DFM for MCU-Based Embedded Systems for Computer Simulation.

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DFM

- Design for Manufacturing (DFM) is the art of designing products in such a way that they are easy to manufacture.
- The basic idea exists in almost all engineering disciplines, but depends on the manufacturing technology.
- In simple language it means relative ease to manufacture a product, part or assembly.

Idea for a new product/service

- Driving simulator for training people for taking DMV test.



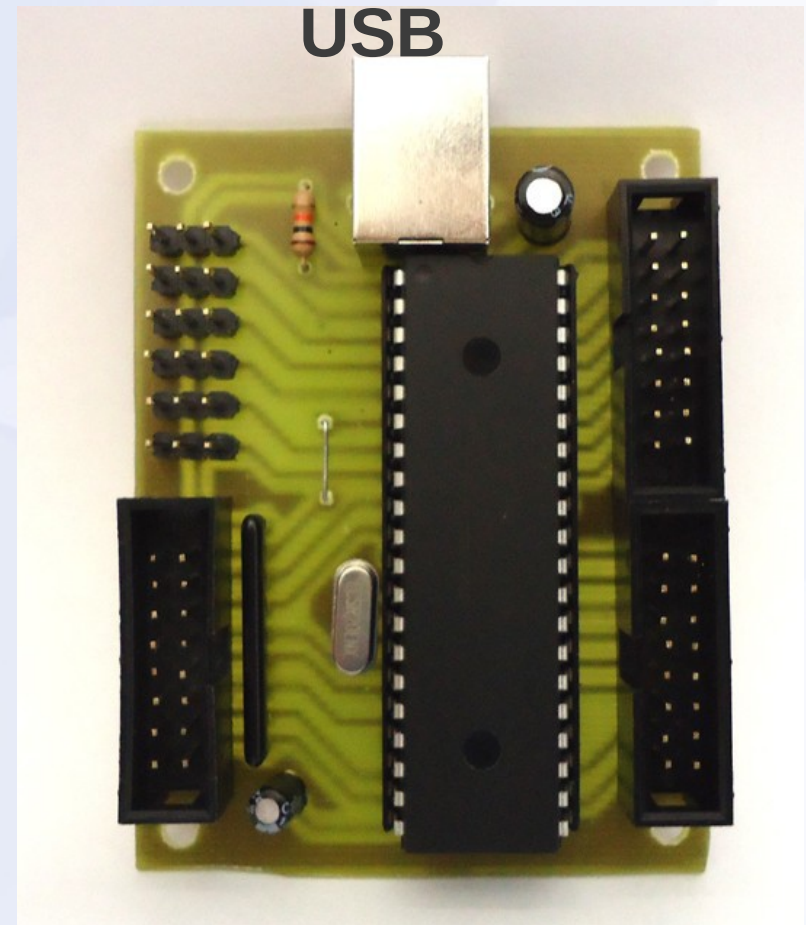
Initial Drawbacks

- How to connect real world car parts to a computer system?



Stargate Project

- An Open source hardware for Human-Computer Physical Interface.
- Intended for Interactive Applications.
- Analog and Digital inputs



The Very First Prototype

<http://youtu.be/Q96-vtmfOiU>

<http://youtu.be/ueWMd7X0TvU>

<http://youtu.be/YOBJScpdMfY>

Our Presentable Prototype



Many other homemade designs



Some professional builders



MEGA PROMOÇÃO
GS PEDAL
CLASSIC PLUS USB



 MAIS DETALHES

PRO FLIGHT
YOKE SYSTEM



 MAIS DETALHES

MEGA PROMOÇÃO
GS DUAL
THROTTLE SE USB
(DUPLO MOTOR)



e-commerce

The screenshot shows a Mozilla Firefox browser window displaying the website <http://www.usbinterface.com.br/loja/>. The browser's address bar and tabs are visible at the top. The website's header features the logo "USB Interface" and the tagline "Sua porta de acesso ao hardware". A navigation menu includes "Home", "Loja", "Minha Conta", "Minhas Compras", and "Realizar Pedido".

The main content area is titled "Placas eletrônicas para fácil conexão ao hardware do PC." and describes the benefits of their products, such as automatic recognition and ease of implementation. A large image of a computer monitor is displayed in the center. To the right, there is a login section with fields for "Seu Email" and "Senha", and a "Entrar" button. Below the login section, there are options for "Idiomas" (Brazilian flag) and "Moedas" (Real).

On the left side, there is a sidebar with "Categorias" (Catalogo, Chips, KITS, Tutorial, Placas), "Novidades" (Chip Stargate - Personalizado, R\$195,00), and "Busca Rápida" (Use palavras-chave para achar o que procura, Busca Avançada). Below the sidebar, there is a "Favoritos" section with an "Adicionar aos Favoritos" button.

The "Produtos em destaque" section features two products:

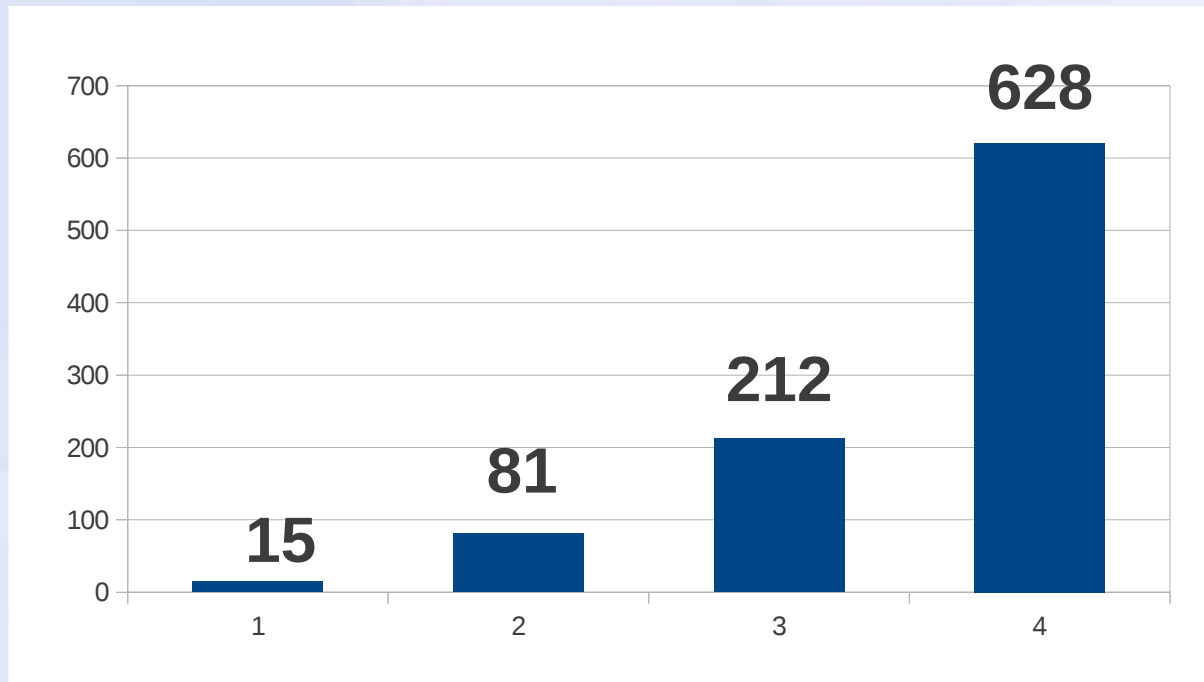
- Outgaugo R7 (combo)**: Solução completa para SLI (Shift Light Indicator): Placas, LEDs e Potenciômetros. Funciona com os simuladores da SIMBIN (Race07, GTL, GTR2, GRT Evo), LFS, rFactor, etc através do SimAdapter. Price: R\$160,00.
- Stargate Combo-864**: Conjunto completo: Placa Stargate Super-864 + Cabos com potenciômetros. Price: R\$149,00.

At the bottom of the browser window, there is a search bar with the text "Localizar: Racing" and a "Concluído" status.

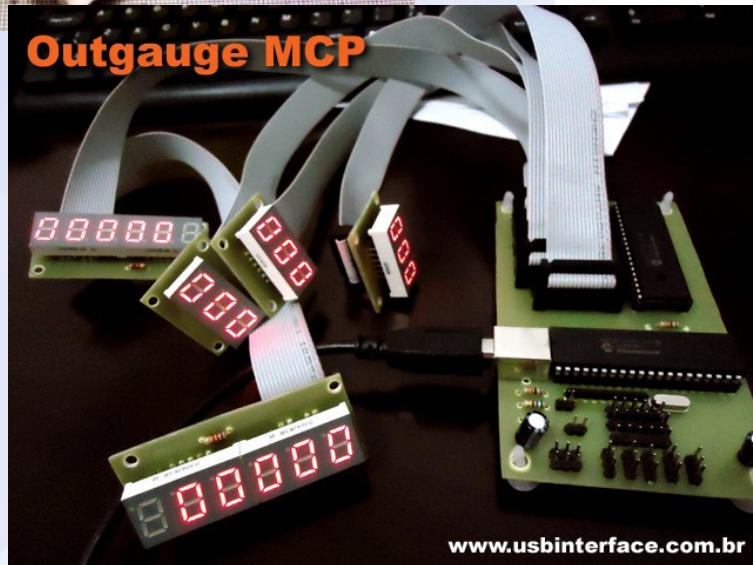
Visitors (customers and friends)



Sales per year (#boards)



Portfolio



Advanced Projects



Training Simulator:
Cessna Skylane RG II Turbo
BRAVIO Brasil Avionics

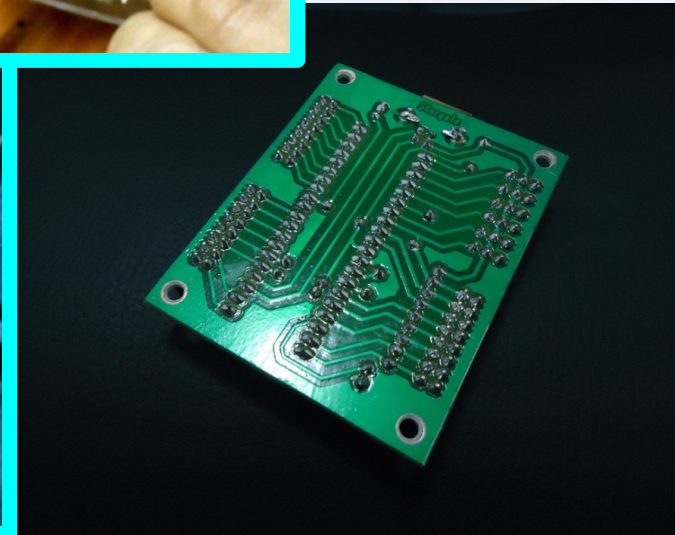
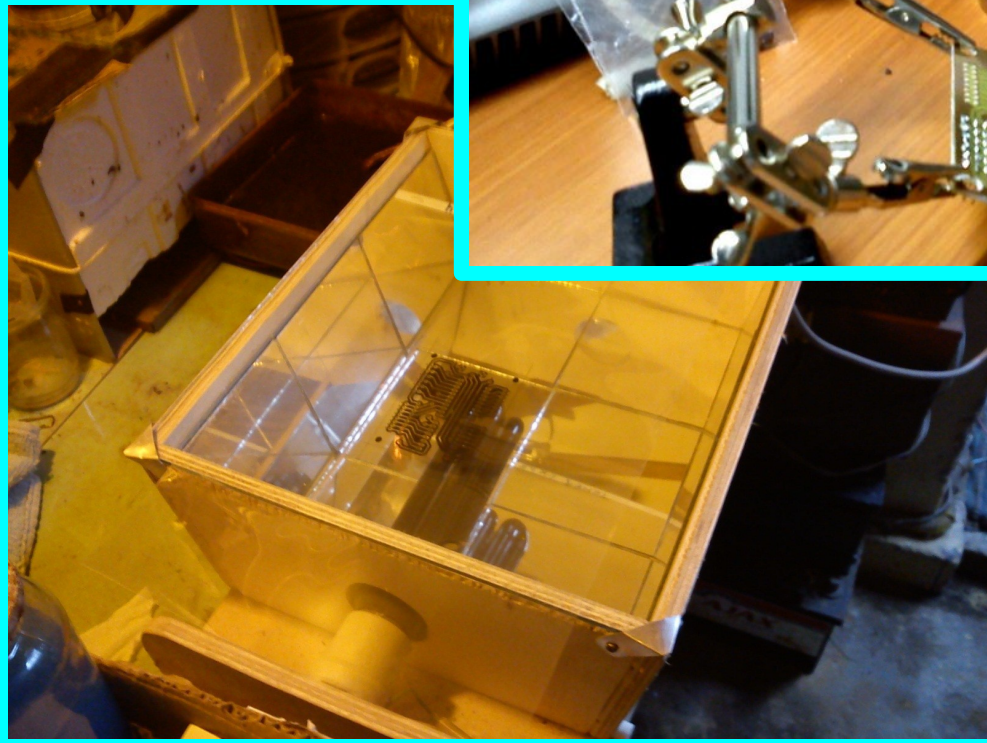


Motorsport simulations
Pedals with load cell sensor
CST Cannon Technologies



Truck Simulator for training
SIMBRA Simuladores do Brasil

PCB Manufacturing



Design for Manufacturing

- Platform-based design.
- Product functionality based on the customer preferences
- Ever shrink turn around:
 - Stargate-864 (1 year)
 - Outgauge-MCP (6 months)
 - Outgauge-F1 (1 month)
 - Stargate-12 (1 week)
 - Reduced cost for development.
 - Same materials for different applications.

Supply Chain



USBInterface



New and Future Projects

- Stargate-NG Projects
- Raspberry Pi Project
- Freescale Vybrid-based Platform

Thank you

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