


Development of Technological Applications in Precision Agriculture, Biomedical Engineering and Process Control





Development of Technological Applications in Precision Agriculture, Biomedical Engineering and Process Control

Alessandra Dutra Coelho
Fernando de Almeida Martins
Hugo da Silva Bernardes Gonçalves
Rogério Cassares Pires
Wânderson de Oliveira Assis

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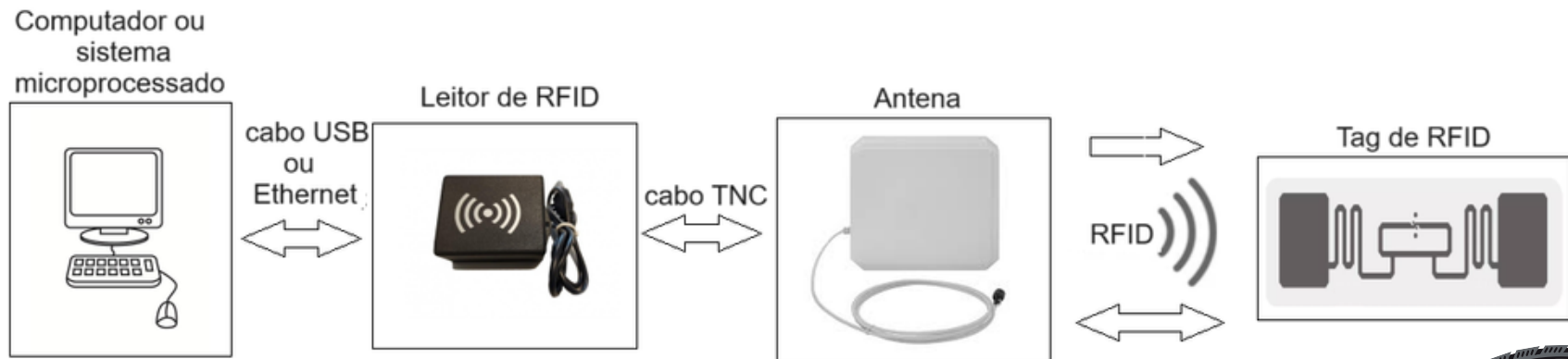


**AUTOMATION,
LOGISTICS,
EMBEDDED
SYSTEMS AND
INTERNET OF
THINGS**



AUTOMATION, LOGISTICS, EMBEDDED SYSTEMS AND INTERNET OF THINGS

- Tire with IoT - Trackable Smart Products and Interoperability in the Automotive Industry Supply Chain with Application to Sensorized Tires



- **RFIDSENSE**
- **Internet of Things**
- **Sensing: pressure (strain gauge), temperature, inertial sensor**
- **Vulcanization**
- **Data Science**
- **Supply Chain**

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centro universitário



Finep
INOVAÇÃO E PESQUISA



PROMETEON



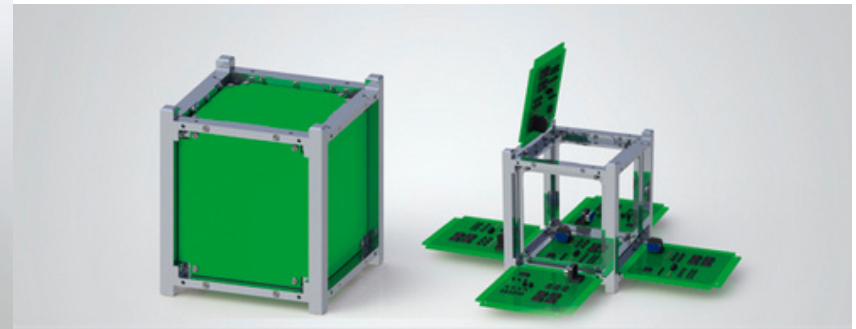
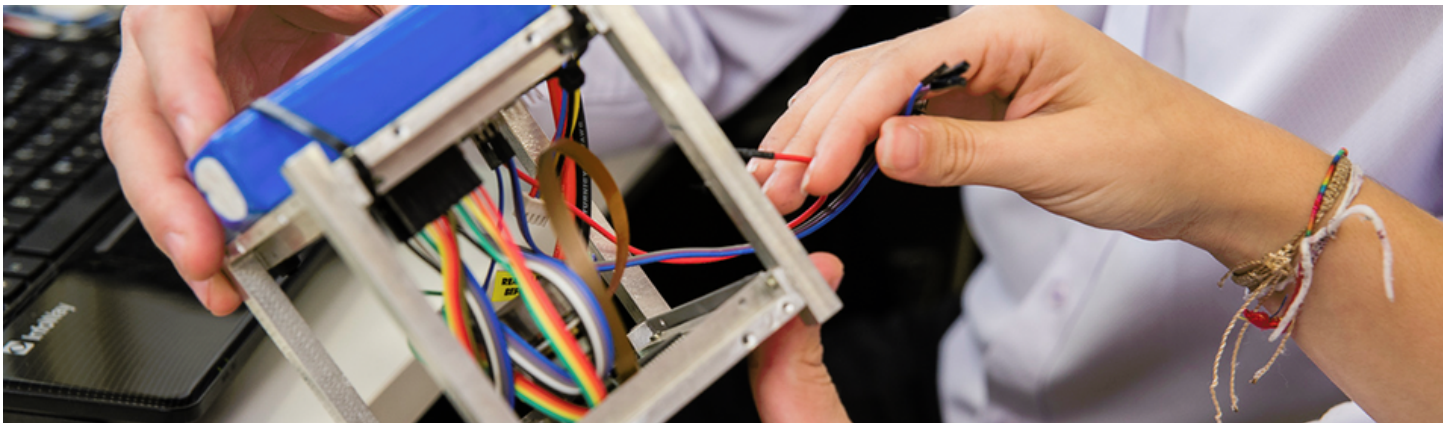
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QUA VOCE PODE TRANSFORMAR O MUNDO.

AUTOMATION, LOGISTICS, EMBEDDED SYSTEMS AND INTERNET OF THINGS

- Onça Sat Project

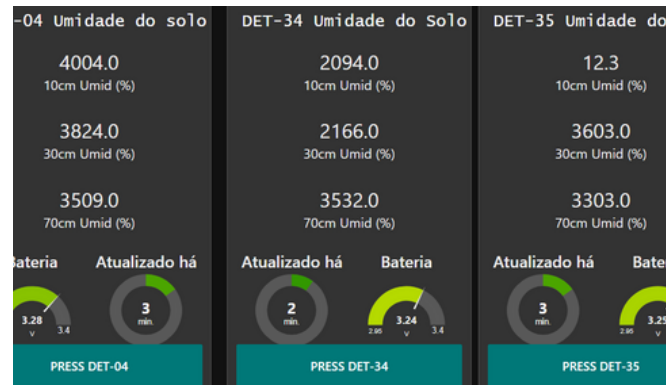
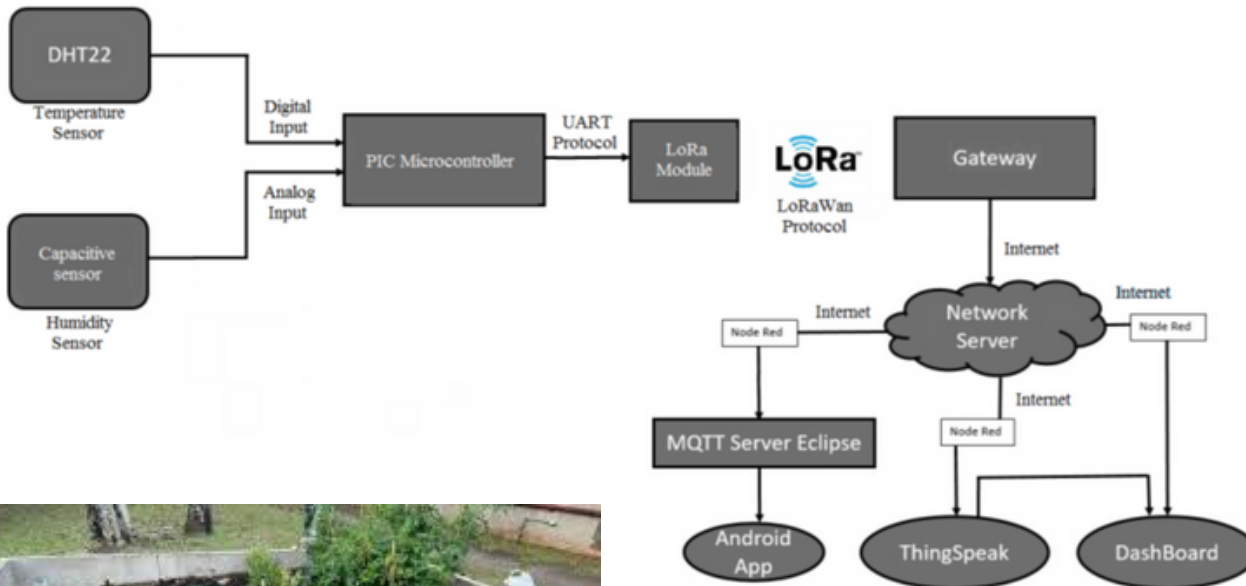


PRECISION AGRICULTURE



PRECISION AGRICULTURE

◦ IMT Automated Vegetable Garden



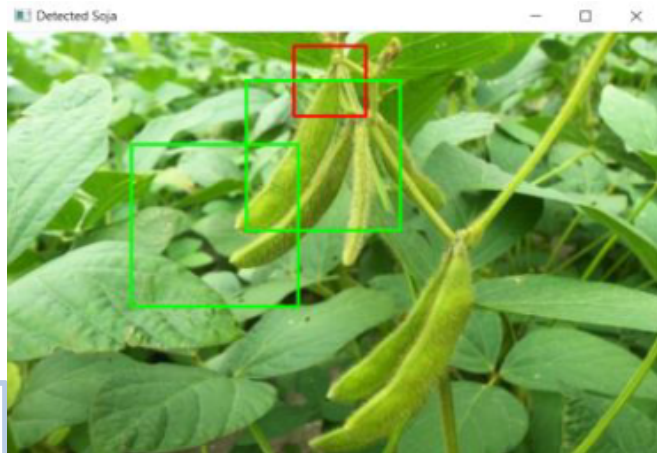
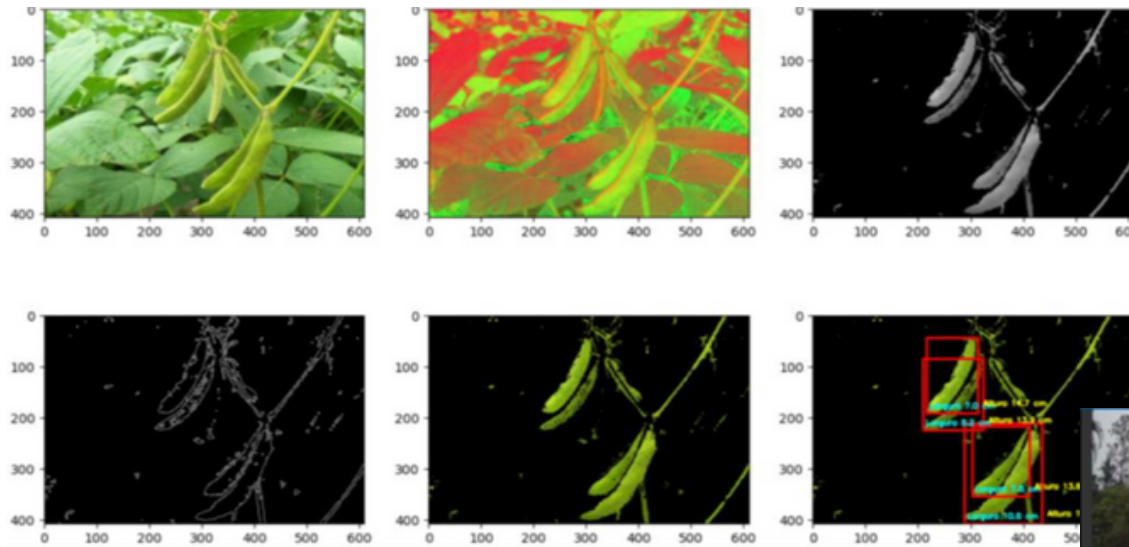
PRECISION AGRICULTURE

- Mauá Vegetable Garden With IoT – GS1 Innovation and Technology Center



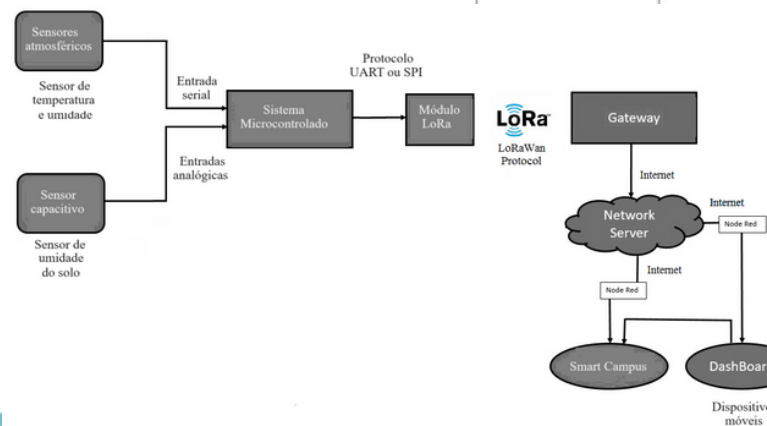
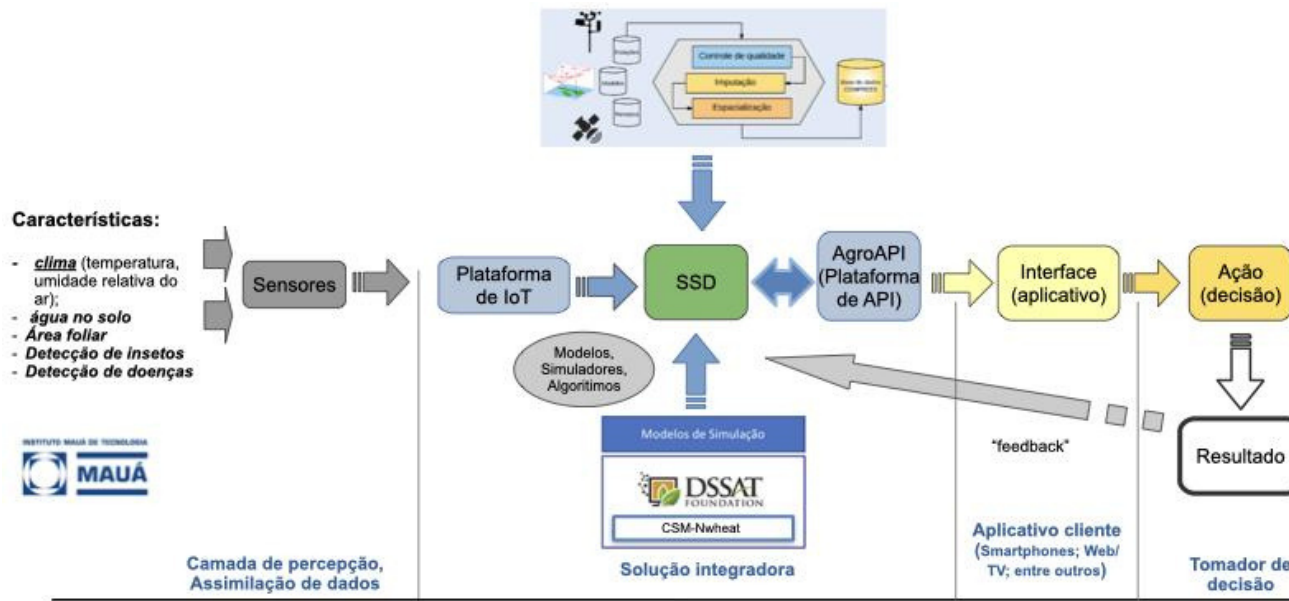
PRECISION AGRICULTURE

Monitoring Plant Growth by Image Processing



PRECISION AGRICULTURE

- “Estimating wheat yield using crop modeling: In-situ data assimilation” – FAPESP

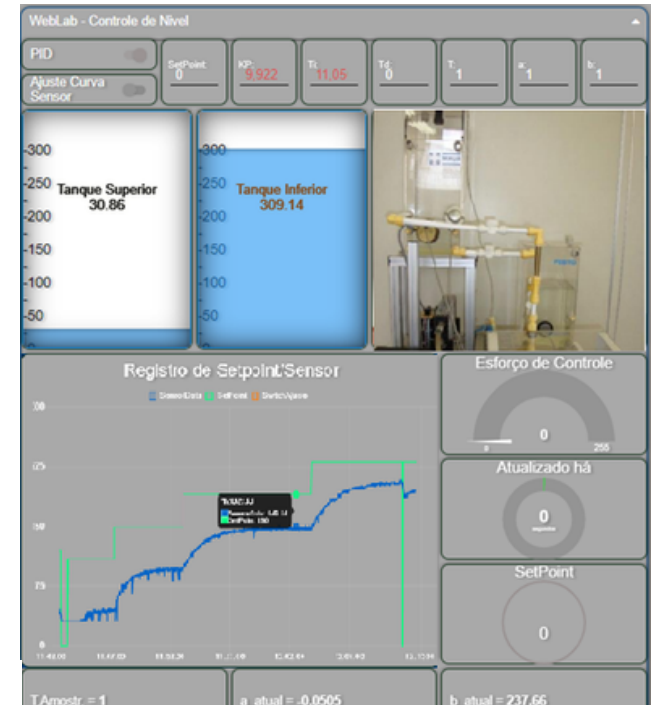
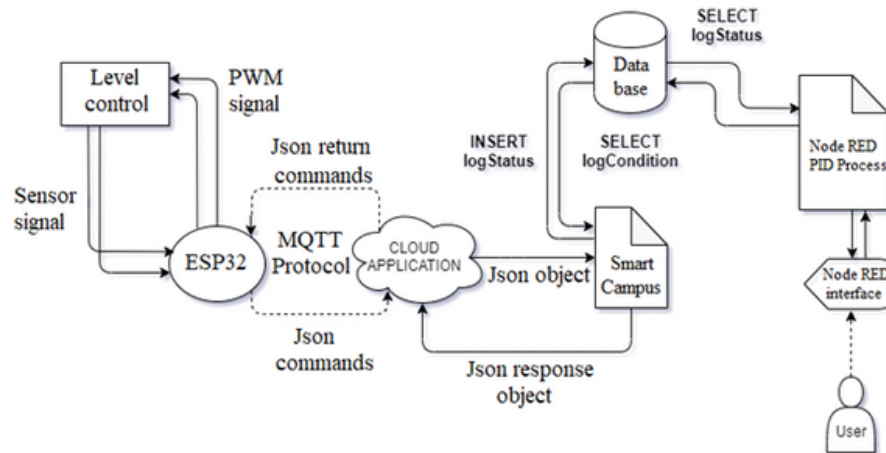
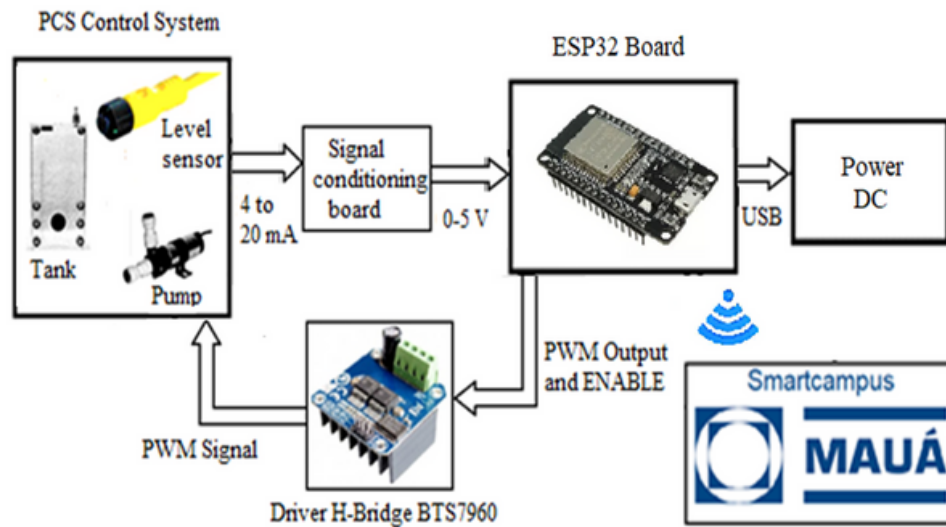


REMOTE LABS AND PROCESS CONTROL



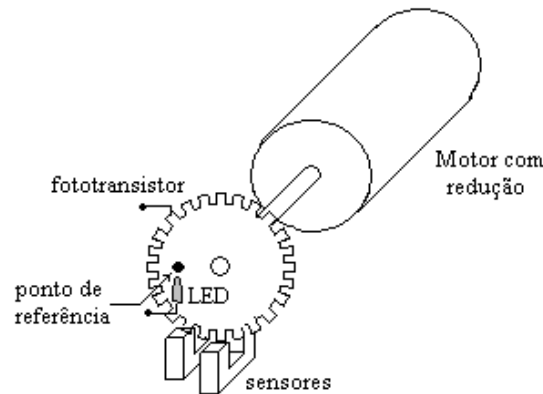
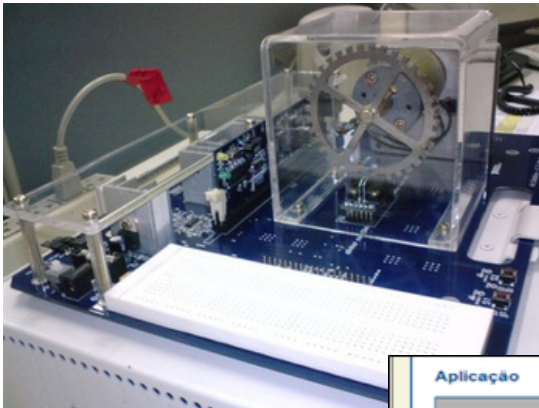
REMOTE LABS AND PROCESS CONTROL

WebLabs and Process Control



REMOTE LABS AND PROCESS CONTROL

WebLabs and Process Control



WebLab
 Laboratório a distância pela Web

WebLab > Controle remoto de posição e velocidade de um servomotor de corrente contínua

Controle remoto de posição e velocidade de um servomotor de corrente contínua

Essa aplicação permite realizar o controle de velocidade de um servomotor de corrente contínua remotamente, inclusive fazendo a aquisição de dados que serão dispostos em gráficos atualizados em tempo real, além de uma câmera de vídeo para acompanhar o resultado.

Status: Em funcionamento
 Desenvolvimento: Thiago Fernandes
 Orientação: Prof. Dr. Wilsonson de Oliveira Assis
 Câmera: Eng. Vericlus Gomes Pacheco

Introdução teórica

Este experimento utiliza-se o kit didático CIBotard, ilustrado na Figura 1, uma ferramenta didática voltada para o desenvolvimento de aplicações de controle, juntamente com o kit ELVIS[®] (Educational Visual Instrumentation Suite) da National Instruments. A aquisição de dados do sistema e a introdução do algoritmo de controle ao experimento foram realizadas utilizando o software LabVIEW[®], também da National Instruments.

Mostrar toda a introdução teórica...

Aplicação

Vídeo

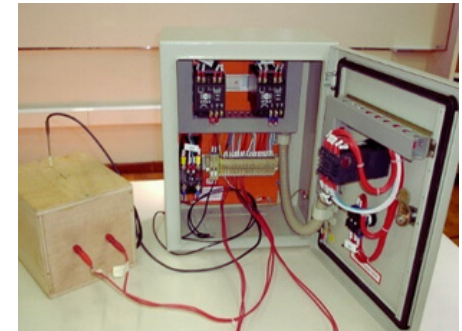
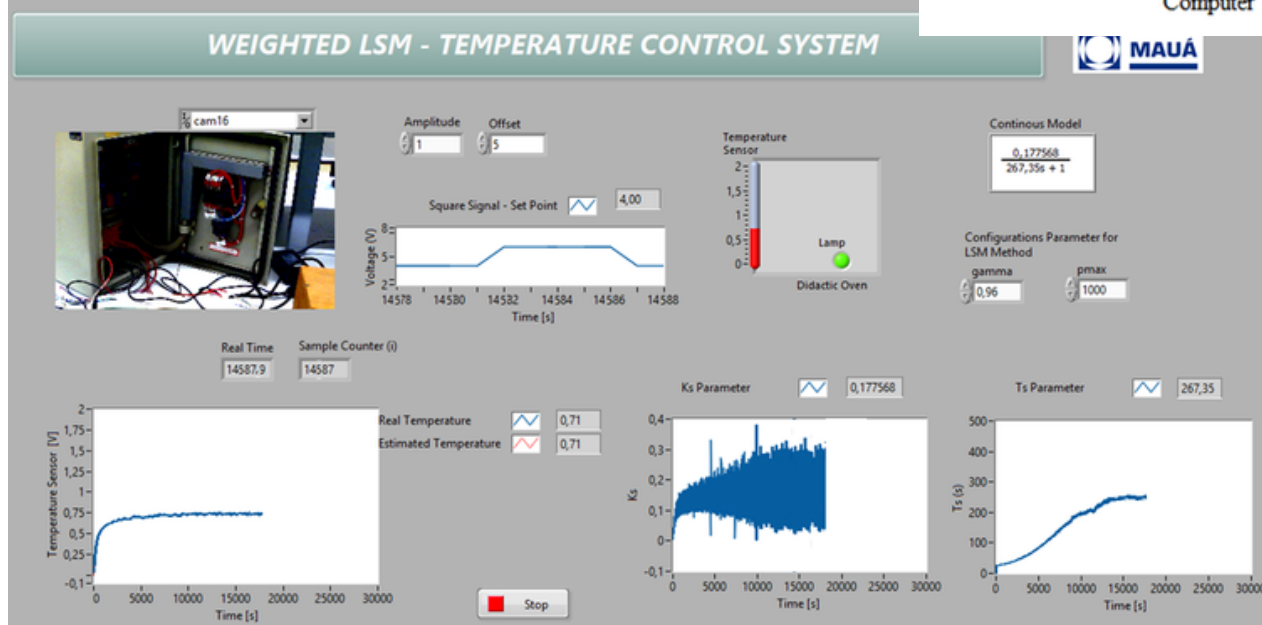
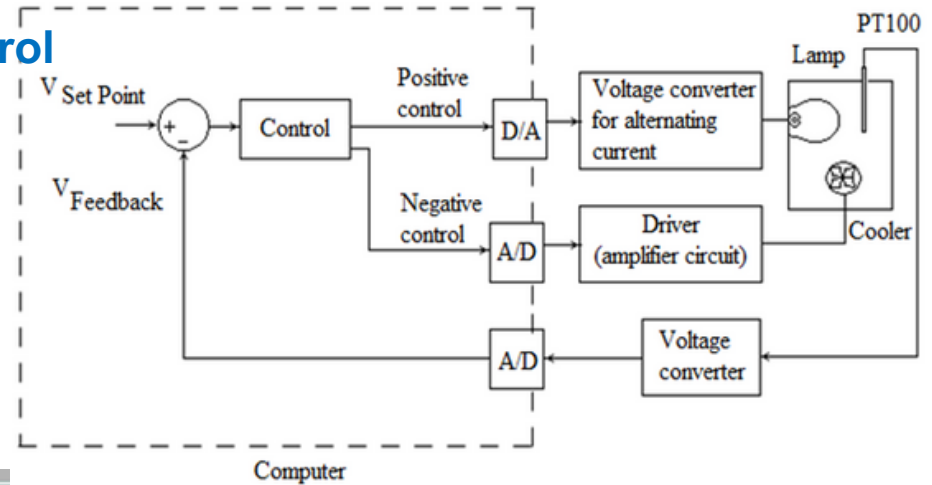
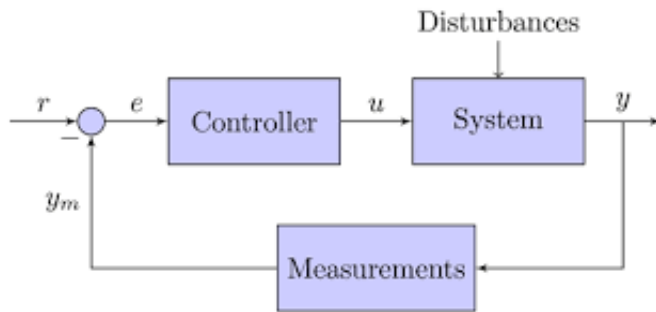
Instruções

- Para solicitar acesso ao experimento, clique com o botão direito do mouse sobre a tela e faça a requisição de acesso em Request Control of VI. Para liberar o controle, selecione Release Control of VI.
- Selecione o modo de operação: malha aberta ou controle PID. Em seguida selecione a variável que você quiser controlar (posição ou velocidade do servomotor).
 - Malha aberta - Permite realizar o ensaio em malha aberta no motor CC. Para isto controle a tensão de entrada do motor (Set Point).
 - Controle PID - Permite realizar o controle PID com realimentação unitária. Para isto selecione os parâmetros do controlador PID (Kp, Ti, Td) e ajuste a tensão de entrada (set Point). Caso esteja utilizando componente integradora, ajuste também o ganho do controlador anti-derivação por meio da entrada Vi. Ajuste os parâmetros do controle de forma otimizada, dependendo da variável que se pretende controlar, ou seja, posição ou velocidade do servomotor.



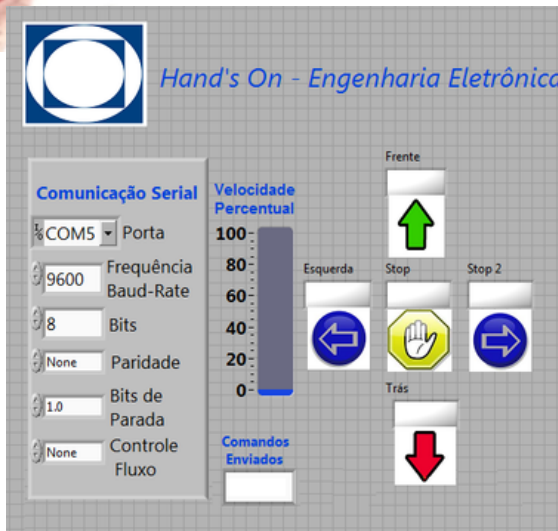
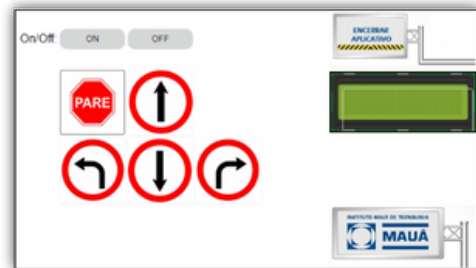
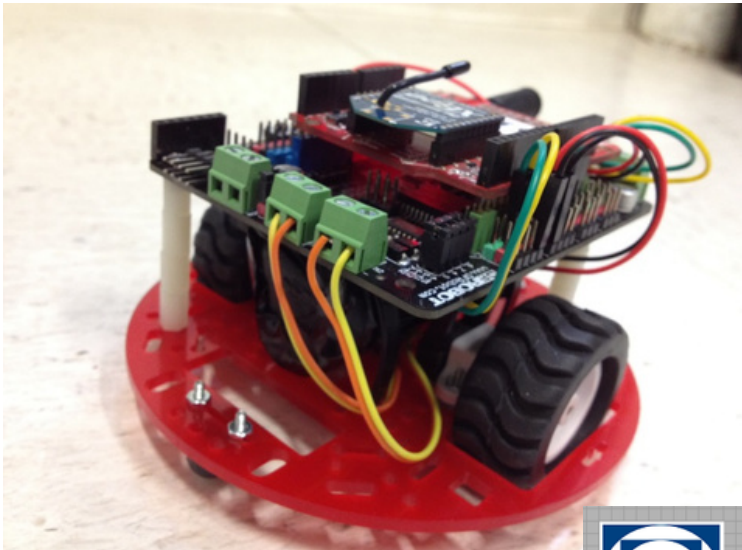
REMOTE LABs AND PROCESS CONTROL

WebLab, Modeling and Process Control



REMOTE LABS AND PROCESS CONTROL

- WebLab



REMOTE LABS AND PROCESS CONTROL

- Contribution to the best use of oil well drilling fluid - an approach using image processing



Oficial - abrindo de arquivo.vi Front Panel *

File Edit View Project Operate Tools Window Help

15pt Application Font

Selecionar antes do processamento !!!

ROI Finalizado Usar imagem de calibração OFF/ON

Interpolation Type Imagem de Calibração

Imagem Capturada

Filtros

- Manipulação de Contraste
- Highlight Details

BCG Values

Brightness: 127,00 Contrast: 55,10 Gamma: 0,70

Seleção do fator de alongação

Elongation Factor

Range Lower Value: 1,00 Range: Exclude

Range Upper Value: 4,00 Measurement Typ: Pixel

Tipo de processamento

Manual Threshold

Low Pass Filter OFF

Limite inferior: 0

Limite superior: 107

933x609 0.32X 32-bit RGB image 227,213,183 (361,83)

Escolha a propriedade a ser medida

Área

Medidas da Propriedade Escolhida (Escala Pixel)

Valor médio da propriedade: 131,00

Número de Objetos encontrados: 8

Valor médio da propriedade: 119,75

Desvio Padrão da propriedade (Pixel): 47,28

Parar processamento da imagem atual

Default Zoom

Zoom das imagens: 0 a 1,5

Save current to Excel (Pixel)

Quando for salvar o arquivo, salvar: nome.xls para abrir no excel

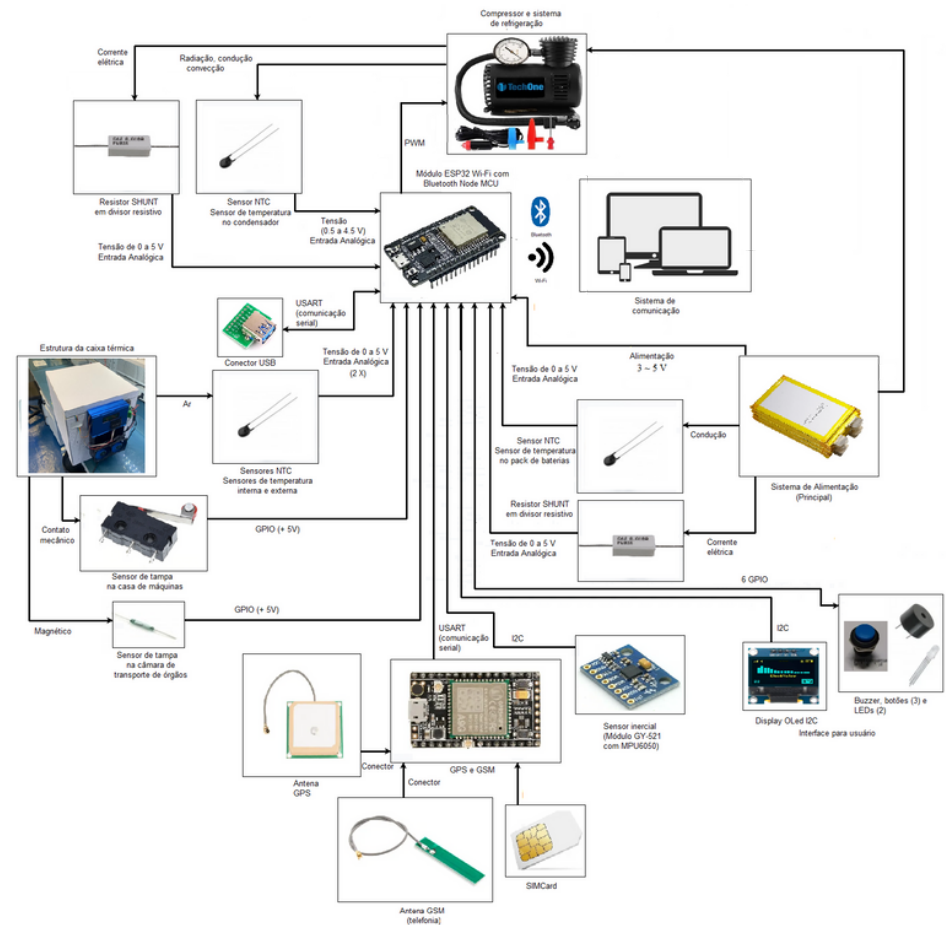


ASSISTIVE TECHNOLOGY



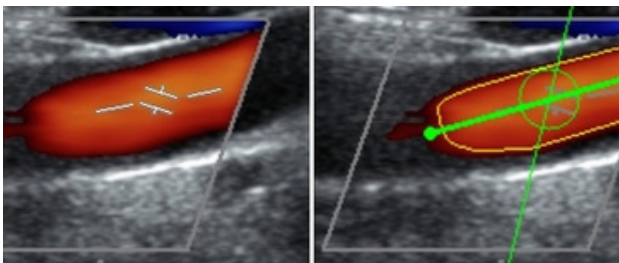
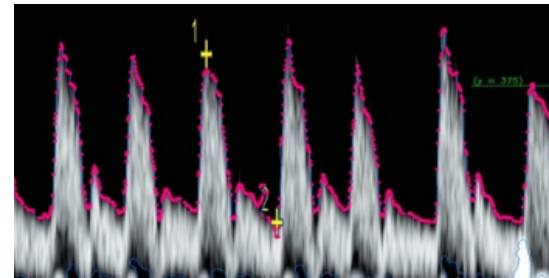
ASSISTIVE TECHNOLOGY

- Organ Transplant Box with IoT - Development and Validation of Intelligent Autonomous Packaging for Healthcare Systems



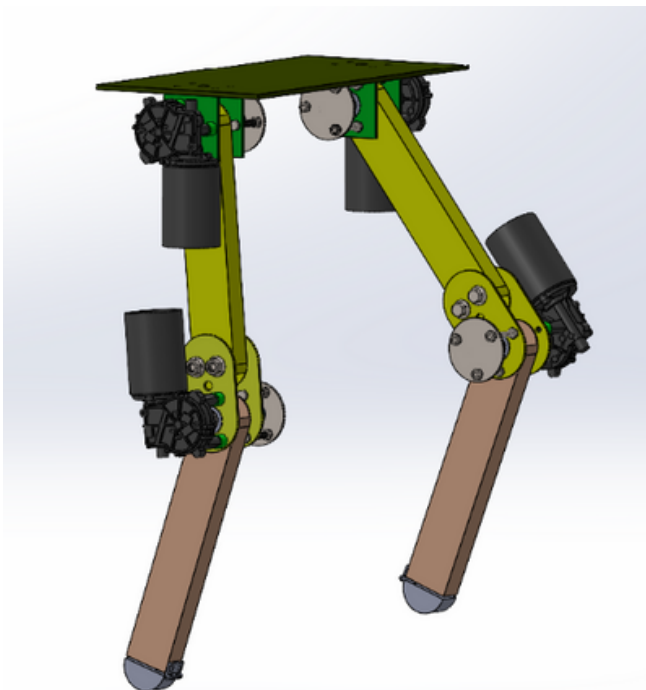
ASSISTIVE TECHNOLOGY

◦ Image Processing Applied to Doppler Vascular Ultrasonography



ASSISTIVE TECHNOLOGY

- Electromechanical Orthosis for Rehabilitation





Thank You!!!

Alessandra Dutra Coelho
alessandra.coelho@maua.br

Wânderson de Oliveira Assis
wanderson.assis@maua.br

(Instituto Mauá de Tecnologia)

April, 2024

