



MECATRONIX

**Construcție demonstrator mecatronic
modular și optimizare algoritmi de
control prin feedback video**

**Universitatea
Politehnica
Timișoara**

Director proiect: SI. Dr. Ing. Cristian Moldovan

Obiectivul proiectului

- Dezvoltarea bazei materiale a UPT
- Identificarea de directii noi de ceretare

Obiectivul operational

Construirea un demonstrator modular ce permite materializarea a diverse aplicatii structurale (brate robotice cu diferite topologii, sisteme dinamice subactuate)

Activitățile principale

A1. Diseminare rezultate

A2.1 Sinteza teme de cercetare

A2.2 Participare stagii de pregatire

A3 Diseminare ARUT prin Aknowledgement

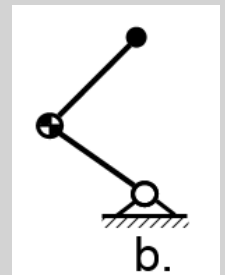
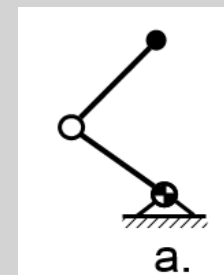
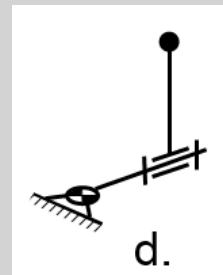
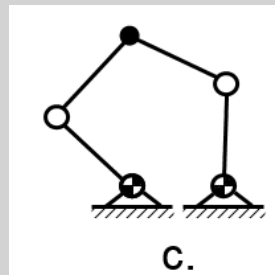
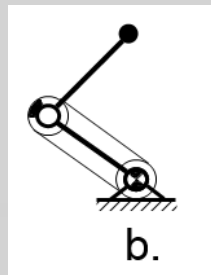
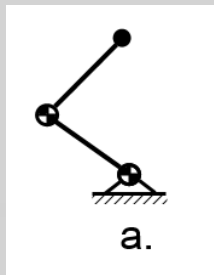
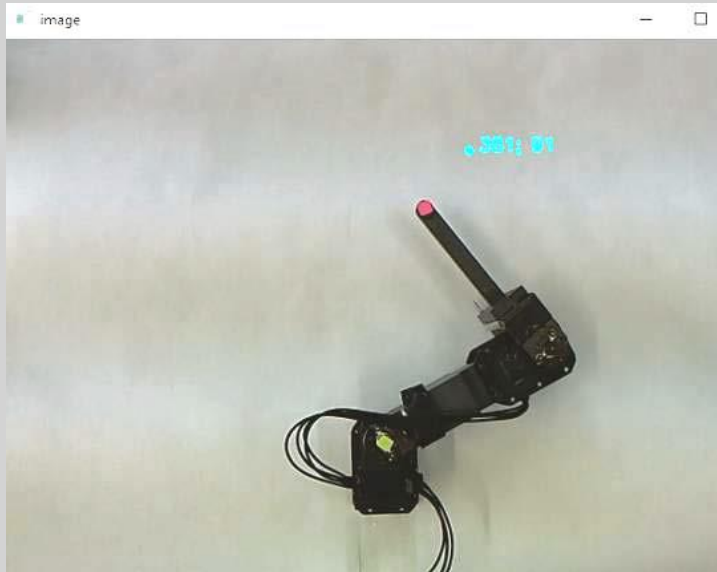
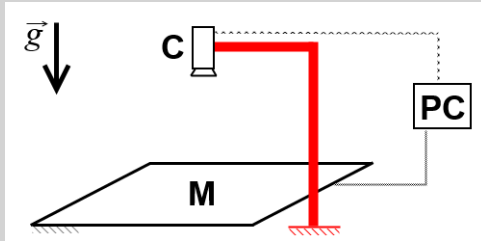
A4 Punerea la dispozitie pentru alti cercetatori a demonstratorului

A5 Realizare demonstrator

A6 Management proiect

Activitati operationale

- Ideea: Robot like -> Human like



Lucrari publicate:

1. C. Moldovan, V. Ciupe, I. Crastiu, V. Dolga - Model free control of a 2DOF robotic arm using video feedback, ISEEE'2019, IEEE doi:10.1109/ISEEE48094.2019.9136164
2. C. Moldovan, V. Ciupe, V. Dolga, EC Lovasz, I. Maniu - Design and novel control solution for a modular mechatronic demonstrator with video feedback used in research and education, Twelfth International Conference on Machine Vision (ICMV 2019), <https://doi.org/10.1117/12.2560153>
3. C. Moldovan, V. Ciupe, H. Filipescu, R. Kristof, V. Dolga - Model-free Continuous to Discrete workspace transformation and path planning of a 2DOF serial arm for visual obstacle avoidance, MTM&Robotics, New Advances in Mechanisms, Mechanical Transmissions and Robotics, Springer 2020

Participare Conferinte Internationale:

SACI 2019 – C.Moldovan si V.Ciupe

- Robert Kristof, Valentin Ciupe, Cristian Moldovan, Inocentiu Maniu, Magdalena Banda and Ana-Maria Stoian - On the design of a myoelectric human-machine interface for the control of an industrial robot, SACI 2019
- Robert Kristof, Valentin Ciupe, Cristian Moldovan, Inocentiu Maniu, Magdalena Banda and Ana-Maria Stoian - Arduino mobile robot with Myo Armband gesture control, SACI 2019

¹ lucrări publicate în circuitul ISI, din care cel puțin una în revistă, participare la conferințe internaționale de prestigiu a directorului de proiect și a cel puțin unui membru din echipa de implementare

Achiziții

- Controller PC
- Webcam 4k
- Camera BASLER Ace800 + Obiectiv C125-0818-5M + Sursa alimentare
- Senzor video controller PC
- Actuator Dynamixel MX 28M, Robotis XL430
- Motor 37 DX
- Micro freza MF70
- Materiale (PLA) si electronica (drivere motoare, convertoare semnal U2D2, controllere)

Vizualizare detalii constructie proiect:

<https://arut-mecatronic.weebly.com/>

Buget

Buget inițial: 47.600 RON

Cheltuieli realizate: 30.976,19 RON

Echipa de cercetare

Director proiect: **Sl. Dr. Ing. Cristian Moldovan**

Membru: **Conf. Dr. Ing. Valentin Ciupe**

Membru: **Ing. Nicoale Todea**

Finanțat prin

*Proiectul de Cercetare pentru stimularea tinerilor cercetători din cadrul universităților
ARUT - GNaC - ARUT - Competiția 2018*