# DSPLabs Projects List (Master, Diploma, R&D)
# 2018 - 2019

| Nr. | Status | Type | General Fields | Project Title | Project Team | Project Management |
|---|---|---|---|---|---|---|
| 1 | Free | Diploma | [Embedded systems]<br>[DSP] | DEMO: Autonomous Embedded Sonar Systems with Bluetooth and Graphic LCD<br>(DEMO: Sistem sonar autonom embedded cu bluetooth + LCD grafic) | 1-2 Students:<br>><br>> | Mihai V. MICEA |
| | | | **Project description:**<br>Implementation and documentation of a Demo system for an autonomous sonar on an embedded platform. The system will have the following main features:<br>- turret, as a rotating support for the ultrasound transducer;<br>- on-board graphic LCD to display the sonar | | **Observations:** | |
| | | | **Descriere proiect**<br>Implementarea si documentarea unui sistem demonstrativ de tip sonar autonom, cu ajutorul unei platforme incorporate. Sistemul va avea urmatoarele caracteristici principale:<br>- turela, ca suport rotativ pentru traductorul ultrasonic;<br>- ecran grafic LCD inco | | **Observatii:** | |
| 2 | Free | R&D/<br>Diploma | [Embedded systems]<br>[DSP] | DEMO: Interactive digital audio effects processor using a DSP-based platform<br>(DEMO: Sistem digital interactiv pentru efecte audio utilizand o platforma cu procesor numeric de semnal) | 2 Students:<br>><br>> | Mihai V. MICEA |
| | | | **Project description:**<br>Implementation and documentation of a Demo system for digital audio effects processing, using an embedded or DSP-based platform. The system will have the following main features:<br>- Line-In and Mic audio inputs;<br>- implementation on the platform of the algr | | **Observations:** | |
| | | | **Descriere proiect**<br>Implementarea si documentarea unui sistem demonstrativ de tip procesor digital de efecte audio utilizand o platforma incorporata sau cu DSP. Sistemul va avea urmatoarele caracteristici principale:<br>- intrari audio de tip Line-In si Mic;<br>- implementarea pe | | **Observatii:** | |

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| 3 | Free | R&D/ Diploma | [Embedded systems]<br>[DSP] | Study of bat-type perception - stereo Sonar and correlation techniques, and DEMO system<br>(Studiul perceptiei de tip liliac - tehnici Sonar si corelatie stereo, si realizarea unui sistem DEMO) | 1-2 Students:<br>><br>> | Mihai V. MICEA |
| | | | **Project description:**<br>Implementation and documentation of a demo system for studying Stereo Sonar with the Correlation algorithms, using an embedded platform. The system will be connected to a host PC for configuration, data gathering/visualization and user interfacing. | | **Observations:** | |
| | | | **Descriere proiect**<br>Implementarea si documentarea unui sistem demonstrativ pentru studiul tehnicilor Sonar stereo cu algoritmi de corelatie, utilizand o platforma incorporata. Sistemul se va conecta la un PC gazda, pentru configurare, colectarea si afisarea datelor si interf | | **Observatii:** | |
| 4 | Taken | Master | [Matlab]<br>[Robotics]<br>[UAV] | Multiple methods of exploring a surface using UAV<br>(Multiple metode de explorare a unei suprafete folosind UAV) | 1 Students<br>> Paul Quentel | Mihai V. MICEA<br>Vlad MARICA |
| | | | **Project description:**<br>UAVs are used in hard to access areas for various purposes, including exploring and mapping.<br>The purpose of this project is to extend and control Peter Corke's Matlab UAV simulator to explore a given surface using different methods and to determine which one is the most efficient. | | **Observations:**<br>Additional requirements:<br>* MATLAB<br>* Python - optionally (for generating input data, even if this is possible with MATLAB) | |
| | | | **Descriere proiect**<br>Dispozitivele UAV sunt folosite in zone greu accesibile pentru diferite scopuri, inclusiv pentru explorare si mapare.<br>Scopul acestui proiect este de a extinde si controla simulatorul Matlab de UAV al lui Peter Corke pentru a explora o suprafata folosind metode diferite si de a determina care este cea mai eficienta. | | **Observatii:**<br>Cerinte:<br>* MATLAB<br>* Python - optional (pentru generarea de date de intrare, chiar daca se poate si in MATLAB) | |

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| 5 | Free | Diploma / Master | [Web]<br>[Moodle] | Moodle plug-ins for cv.upt.ro<br>(Module educationale pentru cv.upt.ro) | 1-2 Students<br>> | Cristina STANGACIU<br>Razvan CIOARGA |

| **Project description:** | **Observations:** |
|---|---|
| cv.upt.ro is a moodle based platform used for learning different subjects.<br>The project aims to improve the educational process by developiing and adding different features as moodle plug-ins:<br>- plagiarism-detection tool<br>- IDE | |

| **Descriere proiect** | **Observatii:** |
|---|---|
| cv.upt.ro este o platforma moodle utilizata in procesul educational pentru diferite materii.<br>Proiectul isi propune sa extinda platforma prin dezvoltarea de module de tip plug-ins:<br>- modul detectie plagiat<br>- mediu integrat de dezvoltare | |

| **Private info:** |
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| 6 | Free | R&D/ Diploma | [LIDAR] [Embedded] | Sistem de orientare si mapare a spatiului folosind tehnologia LIDAR (Light Detection and Ranging) | 1-2 Students > | Valentin STANGACIU |
| | | | **Project description:** The project aims at designing and implementing an embedded system using a microcontroller (except the Arduino platform) able to manage a LIDAR peripheral. The system must also be able to map the surrounding space using the LIDAR technology | | **Observations:** | |
| | | | **Private info:** | | | |
| 7 | Free | R&D/ Diploma / Master | [Scheduling algorithms] [Real-time systems] | SimSo Extension for distributed Mixed Criticality Systems | 1-2 Students > | Eugenia CAPOTA Cristina STANGACIU |
| | | | **Project description:** In the fields of IoT, robotic and cyber physical systems in general, the use of general purpose scheduling algorithms is ineffectual. Thus, special scheduling algorithms are being developed for this purpose. SimSo is a scheduling simulator for real-time multiprocessor architectures, which makes possible the | | **Observations:** Phython C | |
| | | | **Private info:** | | | |

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| 8 | Free | R&D/ Diploma | [Robotic systems]<br>[Real-time systems] | Programming Raspberry Pi 3 based robotic systems | 1-2 Students<br>> | Cristina STANGACIU |
| | | | **Project description:** | | **Observations:** | |
| | | | With the continuous grouth of fields like IoT and cyber physical systems in general, the use and development of robotic systems has an increasing potential from both the applicative and research point of view.<br>The scope of this project is to make different small demo projects (e.g. https://studio.dexterindustries.com/cwists/category) as base for a series of research project in the collaborative robotic systems field. | | C<br>Linux | |
| | | | **Private info:** | | | |
| 9 | Free | R&D | [robotic systems]<br>[Real-time systems] | Development and implementation of communication protocols for multi agent robotic systems | 1-2 Students<br>> | Cristina STANGACIU<br>Valentin STANGACIU |
| | | | **Project description:** | | **Observations:** | |
| | | | With the continuous grouth of fields like IoT and cyber physical systems in general, the use and development of robotic systems has an increasing potential from both the applicative and research point of view.<br>The scope of this project is to develop and implement different communication protocols between robots. | | C<br>Linux | |

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| | | | **Private info:** | | | |
| 10 | Free | R&D/ Diploma / Master | [Wireless Sensor Networks] [Omnet++] | Simulare protocol de comunicatie pentru WSN folosind Omnet++ | 1-2 Students > > | Valentin STANGACIU Doru TODINCA |
| | | | **Project description:** | | **Observations:** | |
| | | | Simulation of a Wireless Sensor Network MAC protocol using Omnet++. The MAC protocol is based on the TDMA access policy. The project must simulate different MAC protocols for Wireless Sensor Networks using Omnet++. | | Prerequisites: C programming | |
| | | | **Private info:** | | | |
| 11 | Free | R&D/ Diploma / Master | | | | |
| | | | **Project description:** | | **Observations:** | |
| | | | **Project description:** | | **Observatii:** | |

**For further information or if you have any questions, please visit our website or contact us at the following addresses:**

- Mihai V. MICEA: mihai.micea@cs.upt.ro
- Razvan CIOARGA: razvanc@dsplabs.cs.upt.ro
- Valentin STANGACIU: valentin.stangaciu@cs.upt.ro
- Cristina STANGACIU: cristina.stangaciu@cs.upt.ro
- Eugenie CAPOTA: eugenia.capota@dsplabs.cs.upt.ro