DSPLabs Projects List (Master, Diploma, R&D)
2014 - 2015

Nr.	Status	Type	General Fields	Project Title	Project Team	Project Management
1	Free	R&D/ Master	[Software IDE] [Embedded systems] [Real-time systems] [Power Aware]	Plug-in for INVERTA: Simulator for Power Aware Scheduling (Modul pentru INVERTA: Simulator pentru planificari ce vizeaza optimizarea consumului de energie)	1 - 2 Students > >	Cristina STANGACIU
			Project description: Development of a simulator for Power Aware Scheduling which uses a series of predefined and user defined energy consumption models at system level, for a set of devices (like sensor nodes and other embedded devices). The simulator will be integrated into the INVERTA visual environment, as a plug-in.		**Observations:**	
			Descriere proiect Dezvlotarea unui simulator ce foloseste o serie de modele predefinte (sau definite de utilizator) de consum de energie la nivel de sistem, pentru un set de clase de dispozitive incorporate, definite in prealabil. Simulatorul va fi integrat in mediul vizual INVERTA, ca plug-in.		**Observatii:**	
2	Taken	R&D/ Diploma/ Master	[Software engineering] [Code analysis] [Compiling techniques] [Real-time systems]	WCET Analysis Tool for Real-Time Applications on a Specific Processing Architecture (Utilitar software pentru analiza timpilor WCET in aplicatii timp-real pe o arhitectura specifica de procesor)	1 Student: > Cosmin CORBU (II CTI EN)	Cristina STANGACIU Mihai V. MICEA
			Project description: Study on WCET analysis techniques and tools, such as the AbsInt Advanced Analyzer. Development of a WCET analysis tool for a specific processor.		**Observations:**	
			Descriere proiect Studierea tehnicilor si uneltelor de analiza a timpilor WCET, cum ar fi AbsInt Advanced Analyzer. Dezvoltarea unui utilitar software pentru analiza timpilor WCET pe un procesor specific.		**Observatii:**	

Nr.	Status	Type	General Fields	Project Title	Project Team	Project Management
3	Taken	R&D/ Diploma	[Real-time systems] [Embedded systems] [Operating systems]	Development of Core Modules for the HARETICK Real-Time Operating Kernel (Dezvoltarea unor module centrale ale nucleului de operare timp-real HARETICK)	3 - 5 Students > Alexandra PETCOV (II CTI) > Bianca RITES (II CTI) > Maria PETRISOR (II CTI) > Roxana POENAR (II CTI) > Laura TANASE (II CTI)	Valentin STANGACIU Cristina STANGACIU Mihai V. MICEA

Project description:	Observations:
HARETICK is a real-time operating kernel, which has been implemented at prototype level on several ARM7 based processors. The goal of the project is to further develop and extend the HARETICK kernel.	

Descriere proiect	Observatii:
HARETICK este un nucleu de operare timp-real, ce a fost implementat la stadiu de prototip pe o serie de procesoare bazate pe arhitectura ARM7. Scopul proiectului este de a dezvolta si extinde in continuare nucleul HARETICK.	

Nr.	Status	Type	General Fields	Project Title	Project Team	Project Management
4	Free	R&D/ Diploma	[Robotic systems] [Embedded systems]	Mobility Management Platform (Daughterboard PCB) for Robots (Sistem (daughterboard PCB) pentru gestionarea mobilitatii robotice)	2 Students: > >	Mihai V. MICEA Dan CHICIUDEAN

Project description:	Observations:
Development of a mobility management board for robotos such as the CORE-TX WIT. The mobility platform will provide a set of movement functions and primitives related to the control of the motor speed, position and orientation of the robot. The platform should use electrical DC motors with optical encoders or Hall sensors. Controlling algorithms should provide antislip movement of the wheels (starting ramp + stopping ramp). Power mananagement for Li-Ion accumulators battery (used only for mobility platform) must be provided (excessive discharge protection, charge profile).	

Descriere proiect	Observatii:
Dezvoltarea unei placi de gestionare a mobilitatii pentru roboti cum ar fi CORE-TX WIT. Platforma de mobilitate va furniza un set de functii si primitive ce vizeaza controlul vitezei motoarelor, a pozitiei si orientarii robotului. Se recomanda folosirea motoarelor electrice de curent continuu, cu reductor si traductor optic de rotatie. Algoritmii de control ai miscarii trebuie sa tina cont efectul de alunecare a rotilor si sa incerce minimizarea acestor probleme. Se va asigura gestiunea acumulatorilor Li-Ion folositi pentru alimentarea placii de mobilitate (incarcare/descarcare).	

Nr.	Status	Type	General Fields	Project Title	Project Team	Project Management
5	Free	R&D/ Diploma/ Master	[Embedded systems] [Real-time systems] [Power Aware]	Analysis and Comparison of Real Time-Power Aware Scheduling Mechanisms on a Specific Hardware Platform (Analiza si compararea mecanismelor timp-real cu optimizarea consumului de putere, pentru o platforma hardware specifica)	3 - 4 Students > > > >	Valentin STANGACIU Cristina STANGACIU

	Project description:	Observations:
	Implementation of various real-time power aware scheduling mechanisms on ARM Cortex M3 based platforms. Analysis and comparison of these mechanisms using specific performance metrics.	
	Descriere proiect	**Observatii:**
	Implementarea unor mecanisme timp-real cu optimizarea consumului de putere, pe platforme bazate pe ARM Cortex M3. Analiza si compararea acestor mecanisme folosind diferite metrici de performanta.	

Nr.	Status	Type	General Fields	Project Title	Project Team	Project Management
6	Free	R&D/ Diploma	[Embedded systems] [DSP]	DEMO: Autonomous Embedded Sonar Systems with Bluetooth and Graphic LCD (DEMO: Sistem sonar autonom embedded cu bluetooth + LCD grafic)	2 Students: > >	Mihai V. MICEA Dan CHICIUDEAN

	Project description:	Observations:
	Implementation and documentation of a demo system for an autonomous sonar on an embedded platform. The system will have the following main features: - turret, as a rotating support for the ultrasound transducer; on-board graphic LCD to display the sonar operation; Bluetooth interface with mobile devices for graphic display of the sonar operation.	
	Descriere proiect	**Observatii:**
	Implementarea si documentarea unui sistem demonstrativ de tip sonar autonom, cu ajutorul unei platforme incorporate. Sistemul va avea urmatoarele caracteristici principale: - turela, ca suport rotativ pentru traductorul ultrasonic; ecran grafic LCD incorporat, pentru afisarea operarii sonar-ului; interfata Bluetooth cu dispozitive mobile, pentru afisare grafica.	

Nr.	Status	Type	General Fields	Project Title	Project Team	Project Management
7	Free	R&D/ Diploma	[Embedded systems] [DSP]	DEMO: Interactive digital audio effects processor using a DSP-based platform (DEMO: Sistem digital interactiv pentru efecte audio utilizand o platforma cu procesor numeric de semnal)	2 Students: > >	Mihai V. MICEA Dan CHICIUDEAN

Project description:	Observations:
Development of a demo system for digital audio effects processing, using a DSP-based platform such as the Analog Devices Blackfin DSP or the Motorola DSP 563xx. The system will have the following main features: - Line-In and Mic audio inputs; implementation on the DSP of the algrithms required by various audio effects (echo, reverb, flanger, phaser, chorus, pitch shift, equalizer, etc.); embedded user interface for configuration and display; interface with a remote digital device for configuration and display; embedded stereo speakers; stereo audio output.	
Descriere proiect	**Observatii:**
Dezvoltarea unui sistem demonstrativ de tip procesor digital de efecte audio utilizand o platforma DSP, ca de exemplu Analog Devices Blackfin DSP sau Motorola DSP 563xx. Sistemul va avea urmatoarele caracteristici principale: - intrari audio de tip Line-In si Mic; implementarea pe DSP a algoritmilor necesari diverselor efecte audio (ecou, reverberatie, flanger, phaser, chorus, pitch shift, egalizor, etc); interfata incorporata cu utilizatorul pentru configurare si afisare; interfata cu un sistem digital extern pentru configurare si afisare; difuzoare stereo incorporate; iesire audio stereo.	

Nr.	Status	Type	General Fields	Project Title	Project Team	Project Management
8	Free	R&D/ Diploma/ Master	[Embedded systems] [DSP]	DEMO and System for studying Stereo Sonar and Correlation techniques (DEMO si sistem pentru studiul tehnicilor Sonar stereo si corelatie)	2 Students: > >	Mihai V. MICEA Andrei STANCOVICI

Project description:	Observations:
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.	
Descriere proiect	**Observatii:**
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 interfatarea cu utilizatorul.	

Nr.	Status	Type	General Fields	Project Title	Project Team	Project Management
9	Taken	R&D/ Diploma	[Embedded systems] [DSP]	DEMO: Real-time audio spectrum analyzer and visualizer using an embedded platform (DEMO: Sistem pentru analiza si vizualizarea timp-real a spectrului audio utilizand o platforma incorporata)	1 Student: > Daniel FRUJINA (III CTI)	Mihai V. MICEA Dan CHICIUDEAN
			Project description:		**Observations:**	
			Development of a demo system for real-time audio spectrum analysis and visualization using an embedded platform. The system will have the following main features: - Line-In and Mic audio inputs; implementation of the real-time spectrum analizer/FFT algorithms on the embedded platform; embedded user interface for configuration; real-time visualization on a LED bar graph or LCD display; embedded stereo speakers; stereo audio output.			
			Project description:		**Observations:**	
			Dezvoltarea unui sistem demonstrativ pentru analiza si vizualizarea timp-real a spectrului audio utilizand o platforma incorporata. Sistemul va avea urmatoarele caracteristici principale: - Intrari audio de tip Line-In si Mic; implementarea algoritmilor de analiza timp-real a spectrului/FFT pe platforma incorporata; interfata incorporata cu utilizatorul pentru configurare; vizualizarea timp-real a spectrului pe sistem cu bare de LED-uri sau afisaj LCD; difuzoare stereo incorporate; iesire audio stereo.			
10	Taken	R&D/ Diploma	[Mobile systems] [Android OS]	Weather widget application for mobile platforms with Android (Aplicatie Weather widget pentru platforme mobile cu Android)	1 Student: > Bogdan TELEHOI (IV CTI)	Mihai V. MICEA
			Project description:		**Observations:**	
			Development of a Weather widget application, similar to the "Weather Channel", for mobile platforms with Android.			
			Descriere proiect		**Observatii:**	
			Implementarea unei aplicatii Weather widget, gen "Weather Channel", pentru platforme mobile cu Android.			

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

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