
Graduate Study in the Energy Systems Group

Faculty in Energy Systems Group

- A. Konrad
 - Electromagnetic modeling
- A. Prodic
 - Low-power switch-mode power supplies & mixed-signal IC design
- P Lehn
 - Power systems; integration of distributed resources
- F. P. Dawson
 - Power utilization and system modeling at utilization level
- M.R. Iravani
 - Power systems; integration of distributed resources

Areas of Strategic Importance to Canada

- Advanced Communications and Management of Information
- Biomedical Technologies
- Competitive Manufacturing and Value-Added Products and Processes
- Healthy Environment and Ecosystems
- Quality Foods and Novel Bioproducts
- Safety and Security
- Sustainable Energy Systems (Production, **Transmission**, Distribution and Utilization)

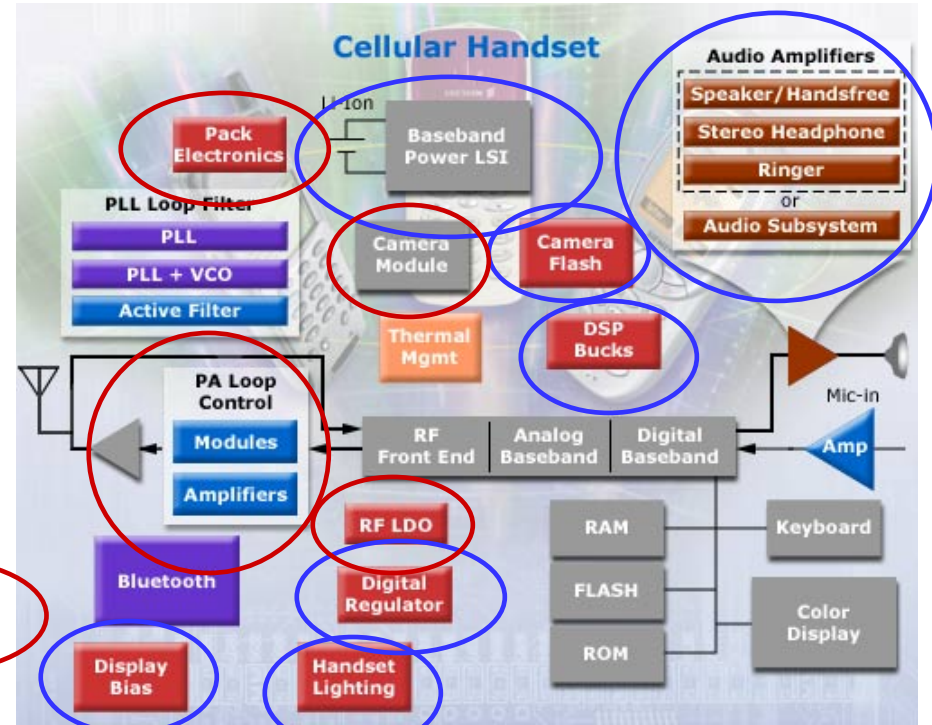
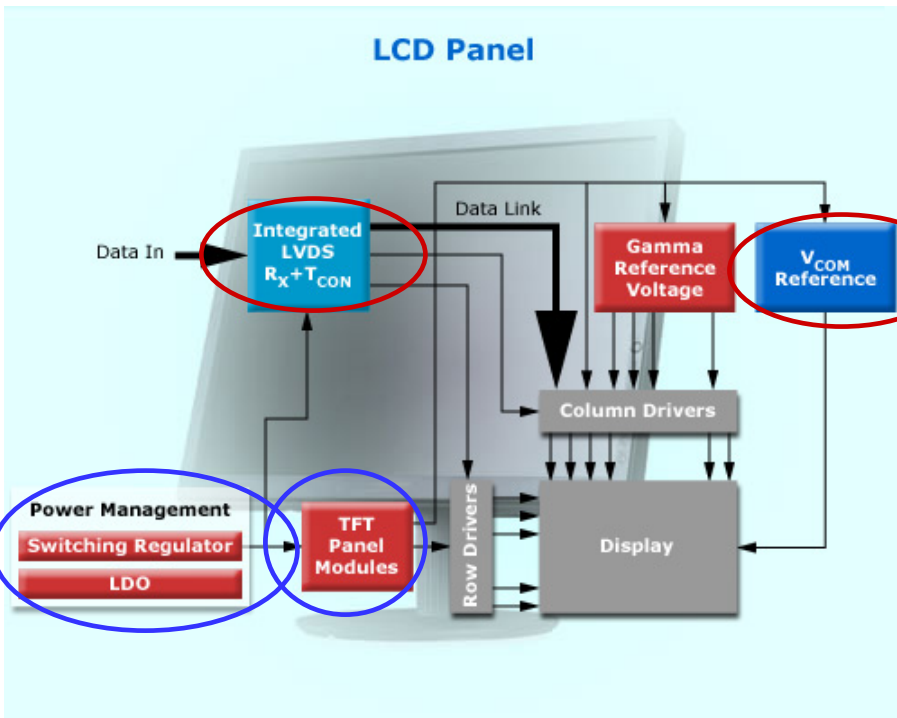
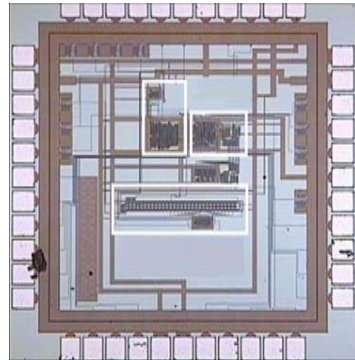
Research Fields in Energy Systems

- integrating non-conventional energy sources such as wind and solar into the electricity network on a large-scale,
- integrating energy storage units in the electricity network,
- using microgrids to do aid storage and generation – employing power electronics, communication and control systems,
- increasing the degree of automation and utilization of interconnected electricity networks,
- providing security, continuity, and quality of energy supply against natural and manmade disasters,
- optimizing hybrid electric vehicles,
- improving energy efficiency of industrial processes,
- improving power density of energy conversion systems,
- improving robustness of energy conversion systems.

Prof. Prodic's Research Interest

Low-Power Power Switch Mode Power Supplies (SMPS) & Mixed-Signal IC Design for Power Electronics

Low-power supply IC developed in Prof. Prodic's lab.



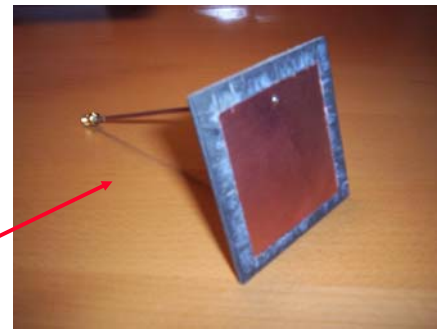
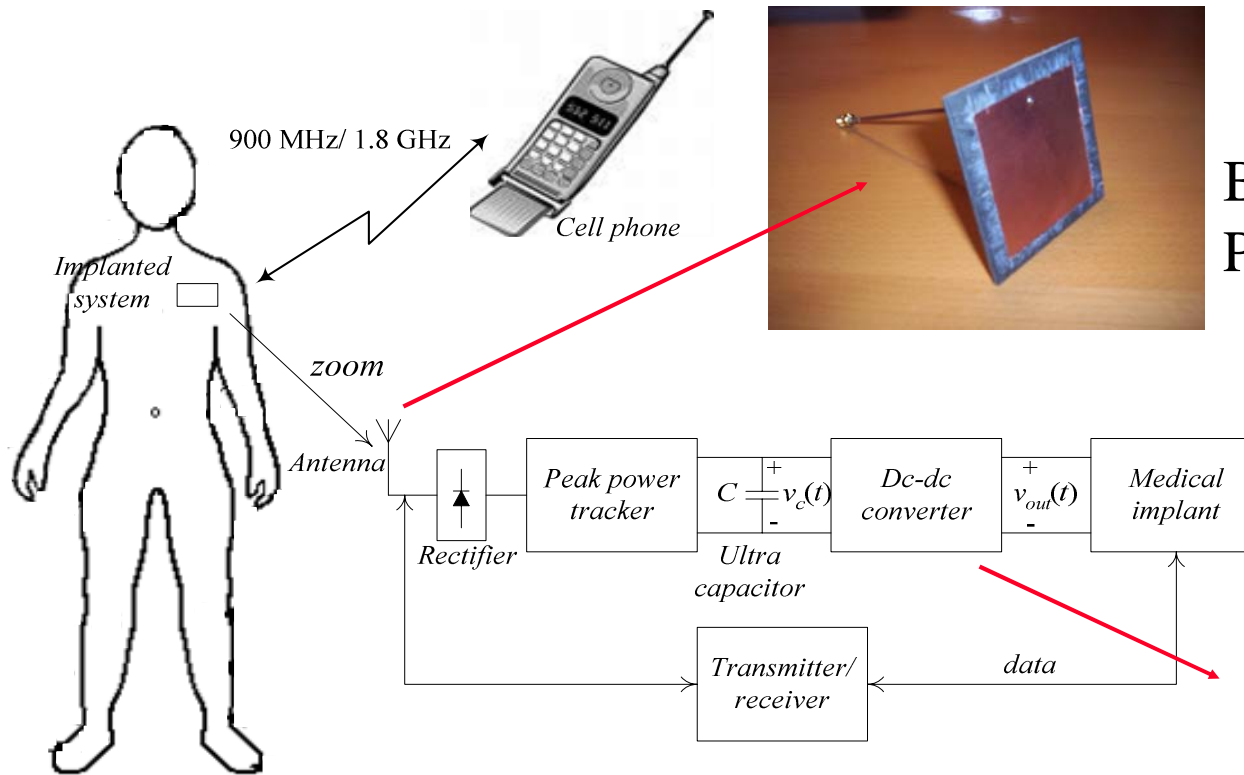
Low-power supplies

Future supplies

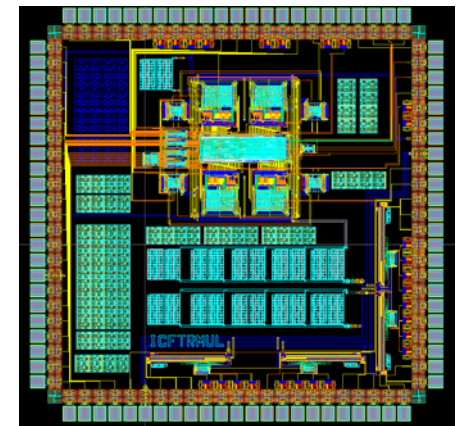


Prof. Prodic's Research Interest

Cell-phone powered implantable system



Blocks developed in Prof. Prodic's lab.



General Graduate Courses

- ECE 533F; Advanced Power Electronics (Prodic)
 - Prerequisites; ECE315F
- ECE 1057F; Static Power Converter 1 (Iravani)
 - Prerequisites; ECE315F, *ECE413S
- ECE1081F; Application of Finite Element Methods to Field Problems (Konrad)
- ECE 1068S; EMC in Power Engineering (Dawson)