Final Year Projects Offered by Malin Premaratne

I am happy to supervise a wide range of projects that require both hardware and software. I do not offer FYP projects in my research area (i.e. in nano-optics or bio-optics). If you have your own idea for a project then feel free to come and see me. I like students to work in groups of 2 or 3 on projects.

Some example Projects on Offer

PID Controlled Stepper Motor

Generally, stepper motors are operated as open-loop control systems. For some applications, open-loop control with steppers is enough, but if error recovery is important, switching to closed-loop control is worth consideration. In this project, a PID controller is implemented in hardware + software to control a stepper motor.

Build OpenServo V4

OpenServo is an open community-based project with the goal of creating a high quality digital servo for robotics (see www.openservo.com). The current implementation is OpenServo V3 which has several deficiencies. In this project, a new version, OpenServo V4 is build to enhance the current capabilities in the V3 version.

Current Limiting High Voltage Source

Electrostatic experiments require 10,000V or over. Most high voltage sources are fatal but can be used safely if the current is limited below 1mA. In this project, 1.5V AA battery operated 10,000V voltage source is built with current limiting capabilities (1mA max).

Printed form filler

Printed forms need to be filled neatly and legibly. However not all of us are blessed with neat, legible handwriting. So it is useful to have a device (and program) that scans a form and enables one to complete it on a computer screen. Later, when the form is placed in a printer, corresponding details need to be printed in the right places.
eHarmony for socks

Loosing socks in the washing machine is a common household dilemma. From the lot that survives after washing, finding a matching pair is one of the many challenges of life. To over come this problem, you are expected to build a tagging system (that is waterproof) and a detector to easily find matching pairs of socks from a laundry basket.

Spot Welding Machine for Aluminum

A fine-spot welder is one of the few equipment where building yourself is cheaper than buying. In this project, an Arduino based spot welder is built for welding Aluminum.

Digital Stethoscope

The purpose of this project was to design and implement a digital stethoscope to serve as a platform for potential computer aided diagnosis (CAD) applications for the detection of cardiac murmurs.