

ELMG News Issue 4
June 2007
Copyright ELMG Ltd 2007

Welcome to the ELMG News

IN THIS ISSUE

- Welcome to 2007 - ELMG wishes you a belated Happy New Year
- The London Fog and why planes, trains and automobiles cannot always land or drive themselves
- ELMG Delivery Address change
- ELMG New Fax Number
- Online management communication for ELMG development projects
- From the FAQ page

If you are not a subscriber become one by completing the form at www.elmgz.com/newsletter.html

- ELMG wishes you a belated Happy New Year

It has been a while since the last e-mail news letter and so a very belated Happy New Year. This year is flying by and it is June already. The year started for me with the birth of Abby Elizabeth. She is doing well. Thank you to every one for you best wishes.

The London Fog, planes, trains and automobiles - an embedded system story

Just before Christmas 2006 I spent sometime in an airport as I waited for my plane. I very nearly had a forced stopover in London. However my connecting flight into Heathrow was cancelled due to fog in London. As a result I did not ever get to London and so I missed my connection out of London. Luckily for me I was re-routed the next day directly through Singapore missing the crowds of delayed passengers at Heathrow. As I waited at the airport I thought about a number of things.

- 1) The people at Heathrow and how their holidays would go? My sympathy to all the people who were delayed in Europe at or around Christmas time.
- 2) Why, if an airliner can land itself at LAX in perfectly good weather, can an airliner not land itself in London in the fog? (The pilot on my last flight to LA informed the passengers that the plane we were on would land itself at LAX. I cannot verify whether the plane did or did not land itself but we did get down safely.)
- 3) What would my pre-school age daughter say if I did not get home for Christmas?

So if the plane can land on a sunny day in LAX why can it not land in the fog at London?

The guidance system on an airliner is an embedded control system. It takes inputs from various guidance sensors (like GPS) and produces outputs for the control surfaces like the elevators and ailerons. As such it will be a mixture of hardware and software. The program code is most probably written in a useful language (not C) such as ADA. The method to write the software is (hopefully) well defined and the code is well inspected and walked through. The guidance system is then certified along with the aircraft by the FAA and other suitable safety authorities.

So let me say that again - on a good sunny day in LA my pilot can let the machine land itself but in London my plane cannot land because of the fog. I thought about why this was and even asked a friend. He said that it was "All because of the labour unions" which I hadn't even considered. I decided that it may well be something else. (Labour unions may have something to do with it but I don't have time to write about that.)

Consider the failure mode of the plane landing in Heathrow in the fog. If something goes wrong with the part of the guidance/landing system that takes care of height, then the airliner hits hard into the runway and makes a mess. Consider the same failure mode in the good weather at LAX. The plane is at the wrong height and would dive into the runway. Instead the over riding backup system looks out the window and takes control of the plane. So here is the skinny – it is OK for the plane to land itself so long as the backup override system is working. This backup is the pilot and so long as she isn't struck down by food poisoning and she can see the runway she will not let the plane crash.

I am glad my flight to London was cancelled.

There have been incidents where the pilot has attempted to stop the plane crashing but the embedded systems in the plane have refused to help out. That, though, is something for another time.

- ELMG Delivery address change

ELMG has moved offices. So our delivery address has changed. It is now
130B Montreal Street
Christchurch
New Zealand

- Post Code Change

The post code for the ELMG postal address has changed. As a result our postal address is now

ELMG Limited
PO Box 112
Lyttelton
Christchurch 8841
New Zealand

The old postal address will continue to be valid until 2008.

- New Fax Number

We have a new fax number. It is

+64 3 9435717

- Online management communication for ELMG Electronics Design and Development projects

We recently decided that our clients should be able to view their projects through our online project management system. Please note that we do not allow access to project information if clients do not want it.

The login page is at <https://proworkflow2.net/elmg/index.cfm>. There is not much to see but if you want to take a look at an example project then please send an e-mail saying that to enquiries@elmgnz.com and we'll get a login and password setup for you to look at some example projects.

- From the Compliance FAQs page

Why should we use ELMG to do product compliance when our test lab say they can do it all for us?

This is a good question. The key difference between a test lab's service and ELMG's offering is that the test lab will not typically be involved in the design of the product. ELMG's service is typically a design and advice input at the front end to ensure that the product will comply and meet the requirements when it is tested. The ELMG input gives confidence that the product will pass the tests the first time through.

If you wish to be removed from this subscription list please send an e-mail to newsletter@elmgnz.com with the word remove in the subject line.

pp ELM G Limited
Dr. Hamish Laird
PO Box 112
Lyttelton

Christchurch 8841
New Zealand
Web: www.elmgnz.com
Phone +64 3 9611222

Contact ELM G now for further information on
Power Electronics, Electronics, Embedded Software and Hardware, CE and UL
processes

CAUTION: This e-mail message and accompanying data may contain information that is confidential and subject to privilege. If you are not the intended recipient you are notified that any use, dissemination, distribution or copying of this message or data is prohibited. All content is to be treated as confidential unless otherwise specified, and is not to be forwarded to third parties without the prior permission of the author. To do so may breach the applicable privacy legislation or regulations. If you have received this e-mail message in error please delete it and notify the sender and ELM G. Thank you.

ELM G accepts no responsibility for any effects this email message or attachments has on the recipient network or computer system.

When addressed to our clients any opinions or advice contained in this Internet electronic mail message are subject to the terms and conditions expressed in the governing ELM G terms of engagement