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To: The Lab Developers (Tony, Ian, Adrian(W), Malcolm, Paul(C) & Robin)
From: Vic
cc: Simon, Paul(S)
Date: Monday 24th May

When the academics have provided us with their detailed assignment specifications (hopefully today), it will be our responsibility to develop a workable implementation plan. Whilst, ideally, this would be a relatively straightforward process, I fear we will be involved in a number of iteration rounds with the academics before we are able to agree a final set of assignment specifications and an implementation plan.

For our initial planning phase, I propose we do this in a two step process. First the two groups of people that will be implementing the assignment support hardware and software will meet (independently of each other and me) with a view to studying the assignments specifications and drawing up an
initial plan (ie producing a reduced and prioritised set of items that need to be built). We will then meet collectively as a group on 28th May to discuss this (and scheduling) before taking this back to the academics via a meeting with Simon on the 1st June.

I suggest the two groups are composed as follows:

Software	Hardware
Tony (convener)	Ian (convener)
Paul(C)	Malcolm
Adrian	Robin

A vital part of the objectives of the plan will be to ensure that assignments are implemented in such a way as to make the most effective use of our departments limited resources (in terms of both expenditure and manpower). Any wastage in our implementation plan will not only jeopardise our ability to meet our own goals, but will be at the expense of something else within the department!

Thus, you will need to search for any commonality in the assignment requirements (eg I/O functions) and come up with an implementation plan that minimises redundancy. For example, we don't want to be making 3 different A/D boards each with slightly different specifications (note 1a). Neither do we want to limit the general applicability of common I/O by embedding it with applications (note 1b).

To act as rough guidance to your planning, I suggest you adopt the following rules:

(a) where assignment commonality exists:
- [i] highlight it's occurrence & items involved
- [ii] suggest how the spec could be altered to share items
- [iii] assume [ii] is adopted when planning other aspects

(b) assign high priority to work which:
- [i] is required in the autumn term
- [ii] is not commercially available (eg not ACIAs, PIAs etc).
- [iii] has general application (ie more than one use).
- [iv] items that contribute to the demonstrator (note 2).

(c) if there is missing assignment spec information:
- [i] contact the academic in question for clarification
- [ii] regard any academic answer as an opinion (note 3)

Shortly, a group (drawing in some additional manpower) will be set up to plan the restructuring of the lab space.

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note 1a

It is expected that assignments will target the use of our selected commercial products wherever possible (ie VxWorks, VxSim, Stethoscope, GNU compiler/debuggers, HM Processor, HM Ethernet, HM Memory, HM Digital I/O (PIA), PEP Prototype, PEP Stepper). Hence these items (or the equivalent/approximate functionality they provide) are not our top priorities. Assignments needing such support will be expected to adapt to use these products. Only in exceptional circumstances (or if we had spare time!) should items with similar functionality be built by our team. One example where we would consider building a duplicate function is the high speed A/D video acquisition board required by the camera.

note 1b
The last document (agreed at the systems staff) called for assignments work addressing academic and and application aspects to be separated. This was to be accommodated by using standard VME boards to support rigidly prescribed academic topics and developing "bolt-on" modules to provide the freedom of application (ie a student could freely chose from a range of IAV application the peripherals to drive). Thus, systems assignments were to be structured by using two parts. The first, and major part, was directed wholly at a classical academic systems topic and a second minor part involved the application (ie the first part was to be rigidly prescribed whilst the second part offered freedom of choice in terms of application). Thus, a digital I/O assignment could accept inputs from unassigned discrete switches and lights, IAV bumpers, or an IAV US proximity detector. To facilitate this a set of standard I/O modules need to be purchased (or built if time allows) and a good selection of non-embedded IAV peripherals need to be locally prefabricated as students were not expected to be involved in the development of these. The peripherals need to interface to standard I/O modules via a robust and standardised connection system (also to be developed locally).

note 2
This aspect has been given renewed importance with the recent suggestion by Paul(S) & Simon that we should aim to be able to give a demonstration to the national press in September.

note 3
It is our task to restructure what may be incohesive requests into a workable plan. Thus, answers (like assignment specifications) which would result in increased redundancy or be inconsistent with our framework are subject to the same critical review as those in rule (a) & (b).