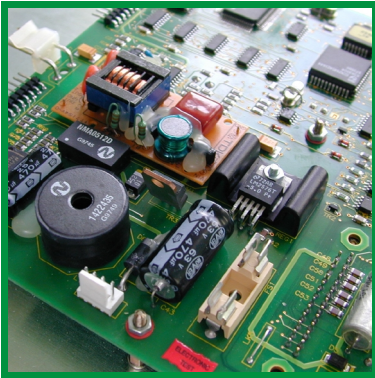
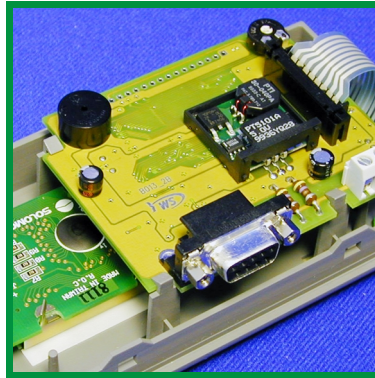


ELECTRONICS SOLUTIONS



INNOVATIVE DESIGN



ENGINEERING SERVICES



- Electronics Engineering
- Microchip PICs®
- General PC architecture
- Motorola PowerPC®
- AMD 186/8 family of processors
- Intel Xscale®
- Flat Panel Display Integration
- Echelon LonWorks®
- System Engineering
- Software
- Functional Prototypes
- EMC Analysis
- Project Management
- Reverse Engineering
- Schematic Entry
- PCB Layout
- Value Engineering
- Production Engineering

Electronics Engineering

Product development

We provide expertise in the design for manufacture of all products with a specialism in electronic control products and user interface systems. Our in-house experience covers analogue and digital design, including microprocessor and microcontroller systems, data conversion and interfacing, display control and driving, optoelectronic systems, power drivers and power supplies.

We pride ourselves on our creative solutions to your unique problems. We use appropriate technologies, to achieve the optimum, cost effective design. Our flexible and efficient team allows us to respond rapidly to enquiries and keep our price structure very competitive.

3Minds ensures conformance to regulations, governed by the EC Directives, (LVD, EMC, TTE and R & TTE), is achieved by our informed "designed-in" approach and not by costly and inelegant add on solutions.

Technical expertise

Our electronic engineers have the technical expertise to design products from the ground up. We have developed many varied designs and indeed have years of experience behind us. This combined with the desire to stay at the forefront of new and emerging technologies makes us the right team for the job that you have in mind.

We have extensive experience from simple control products to embedded and flat panel computers. Previous projects have included designs incorporating the following:

- Intel Xscale®
- Microchip PICs®
- Echelon LonWorks®
- Motorola PowerPC®
- General PC architecture
- AMD 186/188 family of processors
- Flat panel display technologies ranging from small character displays to large TFTs

Flexible approach

We can develop your ideas for functionality into working systems and integrate with your own resources as required. This means that you can use our services to develop complete electronic solutions or indeed any aspect of a system. This flexible approach is aimed at providing you with successful solutions.

Realisation

We will often produce breadboard electronics prototypes to prove new circuits before we go through CAD entry and PCB layout. Only after the design is verified are prototype PCB's produced and hand built, ready for validation.

During validation we test to make sure the product is functionally right and worthy of the greater investment required for taking it into manufacture. At this stage we will also test first fit with any mechanical components.

PCB layout

At 3Minds Limited we believe that PCB layout process is as important as the actual schematic diagram, particularly with the increasing clock frequencies and strict EMC requirements. For this reason our PCB layout work is performed by engineers who are capable of assessing a design for its optimal physical layout and immediately recognising any potential problems.

These issues are not conveyed by a simple netlist which is often all that is given to a PCB designer and most CAD packages have not provided the tools to steer around the problem. We therefore combine the best aspects of the CAD software with the extensive experience of our engineers to provide you with the best solution

Additional prototypes

It is also from this time onward that we are able supply additional prototypes for early marketing activity. This usually involves market testing or sales training which may give you insight as to possible changes that may be desirable prior to expensive tooling. We also use these PCB's for early EMC

analysis and other CE / LVD certification requirements. In order to condense development time scales you may wish to consider having several prototypes made.

Product compliance

Product compliance remains a crucial issue in the development phase which can prevent the sale of products. It is undoubtedly best that design for compliance is incorporated at an early stage to reduce cost and time scales in bringing your product to market.

The EC directives that you will need to comply with will be determined by the product's category and these may include:

- ▶ Electromagnetic Compatibility (EMC)
- ▶ Electrical Safety: Low Voltage Directive (LVD)
- ▶ Waste Electrical and Electronic Equipment (WEEE)
- ▶ Restriction of the Use of Certain Hazardous Substances (RoHS)

EMC analysis

Solving emission and susceptibility problems in products and sub-systems post design is always challenging. Our engineers have many years experience, advising on and administering EMC testing both for our own and customer products. Our experience in EMC analysis dates back to the introduction of the European EMC Directive and its enforcement in 1996.

Choosing 3Minds to provide this valuable service allows customers to call upon a level of expertise, often only needed on an as required basis.

Developing your business, by design.

3Minds actively pursues design solutions that reduce costs and time consuming operations for their customers. We strive to combine this with increased functionality and consumer benefits where possible. For further information or for your free quotation please call today on 0845 680 1024 or email sales@3minds.co.uk

The logo for 3Minds, featuring the word "3MINDS" in a bold, white, sans-serif font, slanted upwards to the right, set against a green background that resembles a ribbon.

Developing
your
business,
by design.



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