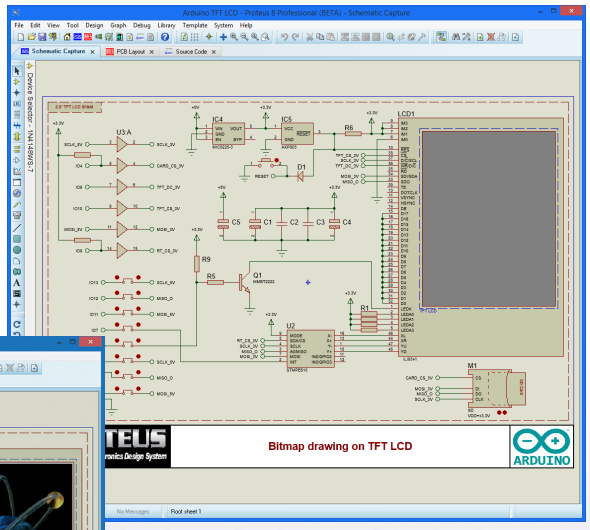
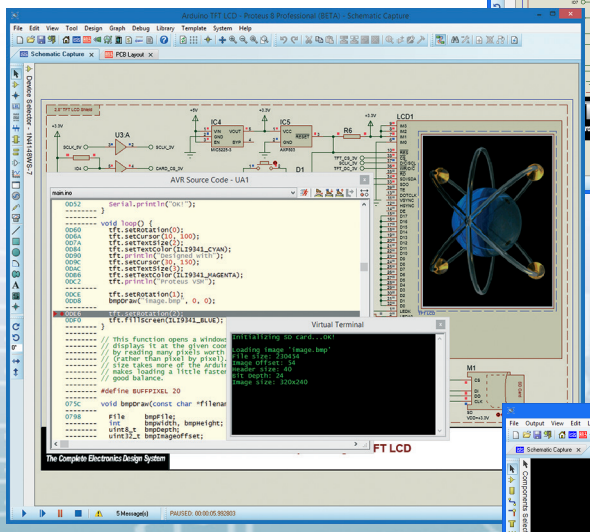
Proteus Design Suite

Teaching all stages of Electronic Design



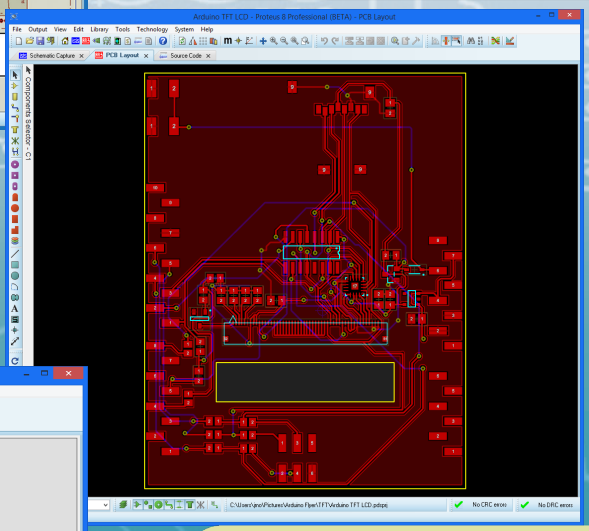
Schematic Design

Create your schematic. This is the 'virtual hardware' for simulation and the logical design for PCB layout.



Firmware Design

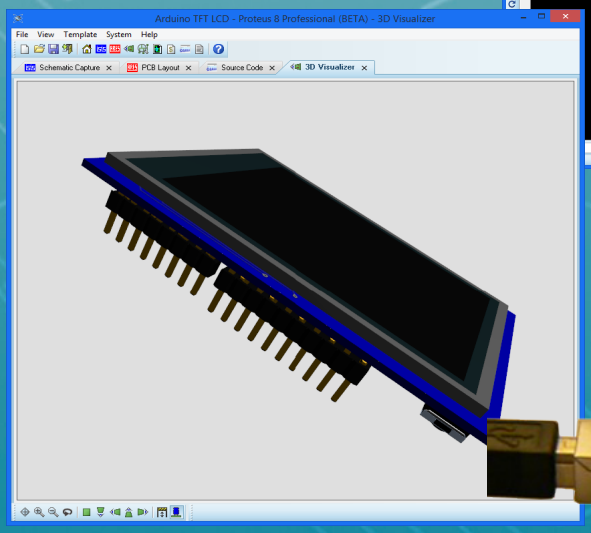
Write your program to control the circuit. Then simulate, test and debug the entire embedded system in Proteus.



PCB Design

With a working virtual prototype, now place and route the physical PCB.

Professional, constraint driven layout tools.



3D Visualisation / MCAD

Use the 3D Viewer for visual inspection and for export to MCAD tools like Solidworks.

Hardware Prototype

Verify that your firmware works on the real hardware.

PROTEUS DESIGN SUITE

The Proteus Design Suite is found in High Schools, Colleges and Universities across the world, teaching Electronics, Embedded and PCB layout courses to hundreds of thousands of students each year.

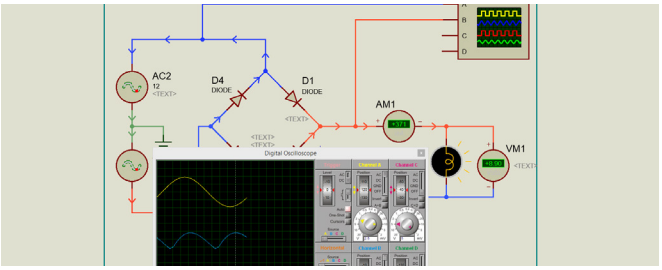
The unique microcontroller simulation capabilities of Proteus VSM enable true end-to-end learning for modern electronics, while our PCB Layout module will help familiarise students with constraint driven design and layout in a tool widely used in industry.

End to End Learning

Teaching Electronics with Proteus

The Proteus schematic capture program is an experimental canvas for students. Together with our world class mixed-mode SPICE simulation engine Proteus provides a safe, fast and immersive learning environment for students.

The ability to interact with a running simulation in Proteus by pressing buttons, ramping POTs or flicking switches makes it ideally suited to engaging students in learning electronic theory.



At introductory levels, simple animations for voltage levels on pins and current flow can be turned on to help students visualise what is happening. As students advance they can use basic meters to take measurements and then be introduced to instrumentation such as an oscilloscope or logic analyser for analysis. Advanced students can then work with more complex circuitry and use graphs to perform a host of more detailed analyses such as frequency, fourier or distortion.

Teaching Embedded with Proteus

Microcontroller simulation is where Proteus truly leads the way. The whole learning process takes place in software with the schematic capture module serving as the 'virtual hardware' and the VSM Studio IDE module enabling firmware development and compilation.

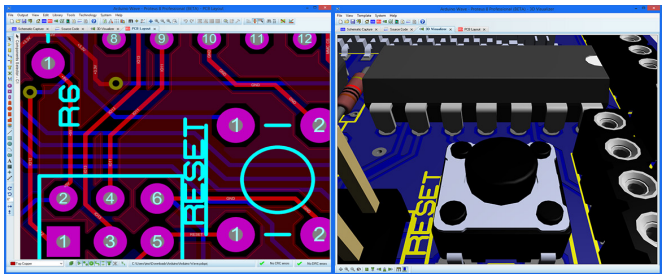
Basic concepts such as using interrupts, reading from an ADC or setting up a UART can be shown in the context of a simulated embedded system. Educators or students can set breakpoints and pause at any time, examining source code or voltage levels on the schematic and then single stepping through the code. A host of register, variable and watch windows can be used to display relevant information and there is even diagnostics display that provides command and data information from the entire simulation in plain text form.

Teaching embedded design requires not only microcontrollers but also embedded peripherals and support for interconnect protocols. Proteus VSM includes simulation models for thousands of complex embedded peripherals and fully supports simulation of modern communication protocols such as I2C, SPI, Ethernet or even USB.

Students can therefore place and connect the microcontroller to all sorts of interesting parts on the schematic, from BLDC's to I2C temperature sensors to LCD/TFT displays. sensors and connectivity. Students can be engaged in writing the controlling firmware for a pre-drawn schematic or they can be tasked with designing hardware on the schematic to run existing firmware.

Teaching PCB Layout with Proteus

The Layout module in Proteus integrates seamlessly with the rest of the system so students can easily move their simulated designs through to the board layout phase. A simple, uncluttered user interface then makes it easy for students to focus on learning the electronics rather than the tool itself.



As a feature complete commercial package, key concepts such as setting up board constraints and using power planes can be explained and demonstrated. More advanced students can experiment with multi-layer design and gain an understanding of how to cope with the more complex routing required for fine pitch SMT or BGA connections.

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