



"Embedding thoughts into Technology"

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Foot Scanner

Client:

A leading leather research institute, catering to the healthcare market, by designing specialized footwear for orthopedic patients.

Requirement:

To develop a system that will scan images of a foot from different angles. These images will be processed by a PC application that will create a 360-degree model of the foot. This 3-D model can then be used by CNC machines for precision drilling.

Solution:

A hardware unit fitted with 5 cameras at orthogonal positions inside the Unit to grab the images of the foot from these 5 positions. Inside the Unit there is a Multiplexer to control 5 cameras and to provide an interface with the PC, so that all the illumination and cameras can be controlled from the software and to store the images in the PC. An application is developed to process each image set and create a 3D model out of it. Once the basic 3D model is generated, some optimization and editing is applied. A software module to generate and design customized footwear for the 3D model was generated. A software module to interface the PC software with the CNC Machines to roll out the physical models of the virtual 3D mould generated.

Tools/Platforms:

The Software development platform selected was Windows with OpenGL Graphics engine. The development was done in VC++ using C/C++ with OpenGL SDK and Win32 APIs.