

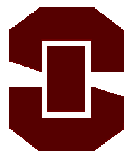
### Case Study - Argus Electronic Gmbh Tree Diagnostics Instrument (HKAFCD April 2008)

In order to handle huge number of tree health studies in Hong Kong, Science Laboratories Limited supplied an advanced Sonic Tomograph, Argus Electronic Gmbh to the Agriculture, Fisheries and Conservation Department. The instrument can detect any decays and cavities in standing tree nearly non-invasive. It uses the fact that the velocity of sound in wood depends on the modulus of elasticity and the density of the measured wood. Most damages, which impair the safety against fracture of trees, in particular cavities, white rots, and brown rots reduce elasticity and density in wood. These wood characteristics vary both within a tree species, and between the tree species, only large damages can be found by a comparison of individual sound velocities, which were measured on a specific tree, with tabulated standard values.

The PiCUS Sonic Tomograph consists of a set of sensors (typically 8 to 12), which are strategically placed around the tree. Each sensor is connected to a pin or nail (0.8 - 2 mm in diameter), which is tapped into contact with the wood - onto the latest tree ring - by a pin hammer at each inspection point. The sensors record the times of flight of sound waves manually induced by knocking with a small hammer. From the times of flight of the sound wave and the distances between the sensors, apparent sound velocities are calculated.

#### PiCUS Sonic Tomograph Instrument



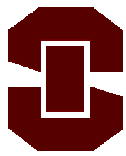


Mr. Ian Issacs, Sales Director presented the working principle of instrument.



Mr. Issacs firstly provided in-house products training. Users were being practiced how to use Model Calliper to measure the sharp of tree which is a very important factor for tree diagnosis.



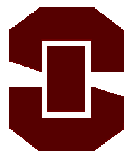


Mr. Issacs demonstrated how to use Pocket PC to change setting and view data.



Users can mount up to 14 sensors on the tree surface with very large diameter.





Data from the Pocket PC can be downloaded into any notebook or desktop PC which installed analysis software for data storage and analysis.

