3D Motion Analysis System



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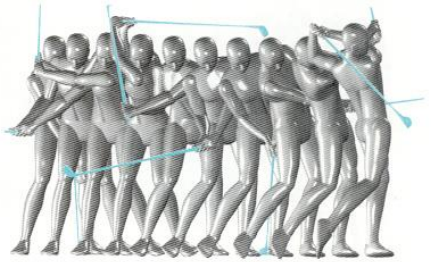
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What 3D Motion Analysis is?

- Technology analyzing various movement of Human body and Animal
- Measurement and Analysis of necessary information such as position, velocity, vector, etc , through optical photographing of more than 100Fps(Max.300fps)
- Physical value measurement (Biomechanics) of all body joint and segment by remodeling 3D coordinates

Motion Analysis Effect

- Momentum variation analysis of average person, athlete, handicapped person, various animal
- Motion research and analysis of human body and animal body
- Scientific Data of sports efficiency and prescription effect
- Data sheet print of motion analysis results
- Inverse Dynamics Analysis compatible with Ground Reaction Force and Electromyogram data

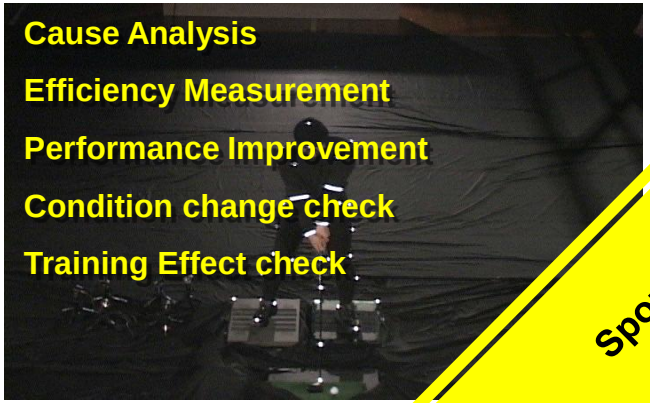


Motion Analysis Applications

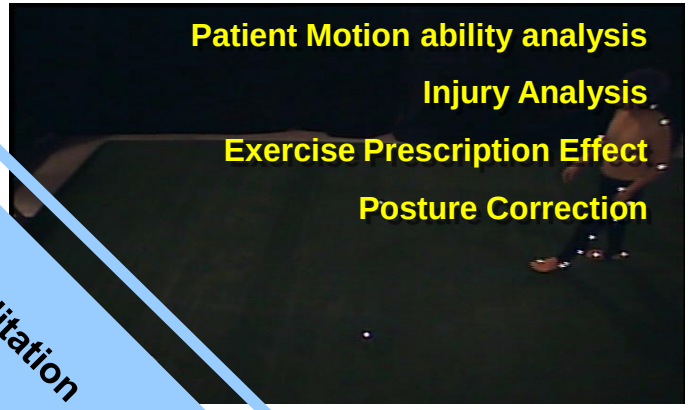


Biomechanics

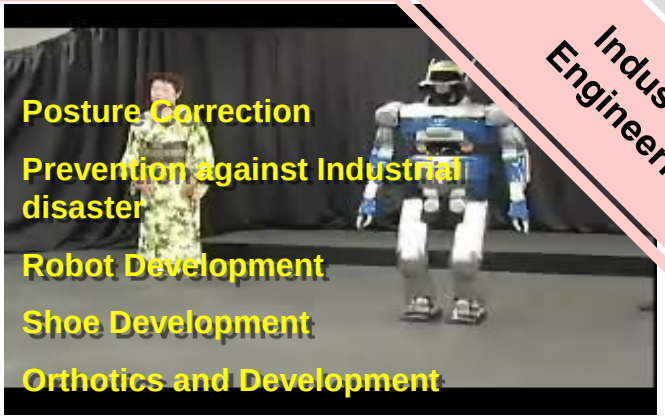
Sports



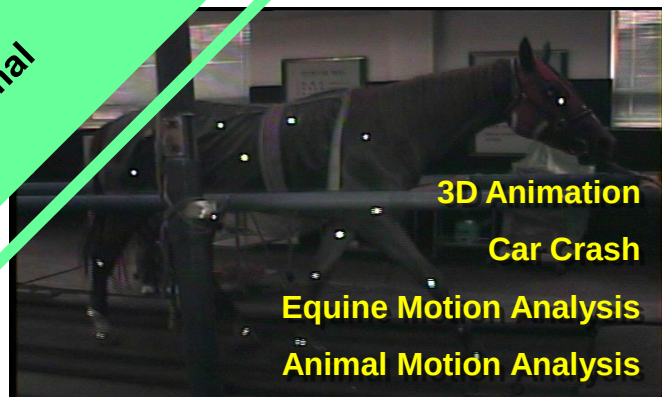
Rehabilitation



Industrial Engineering



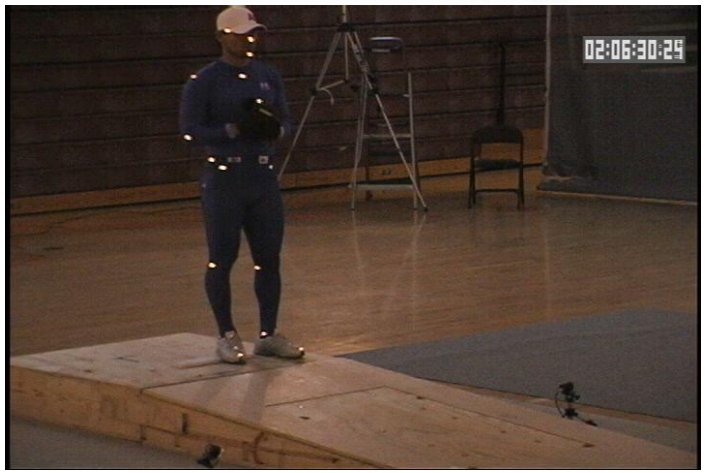
Animal



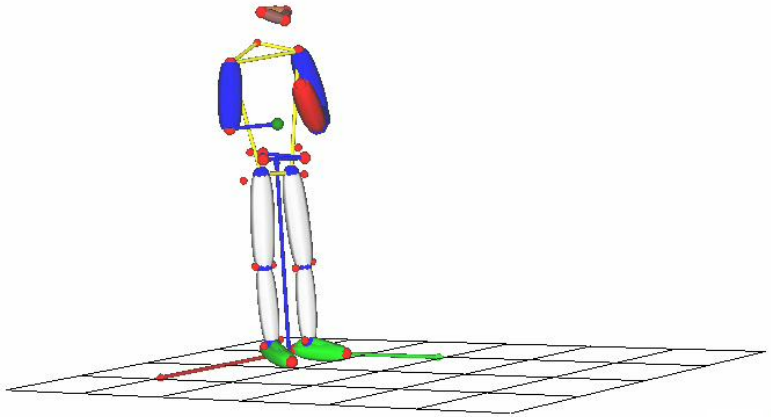
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Subject Motion Analysis Sample



Real Image Sample

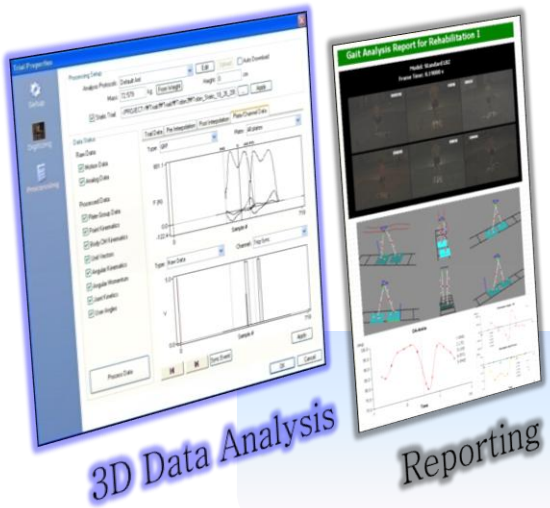


3D Point View Sample

3D Motion Analysis System

- User Friendly GUI Interface
- Fast & Powerful Data Process
- Sync with Video and Analog Data
- Advanced Report Printing





- Sports, Gait Analysis, Sports Biomechanics Rehabilitation, Human Engineering applications
- User Friendly Report Function
- Perfect Integration with Force Plate and EMG

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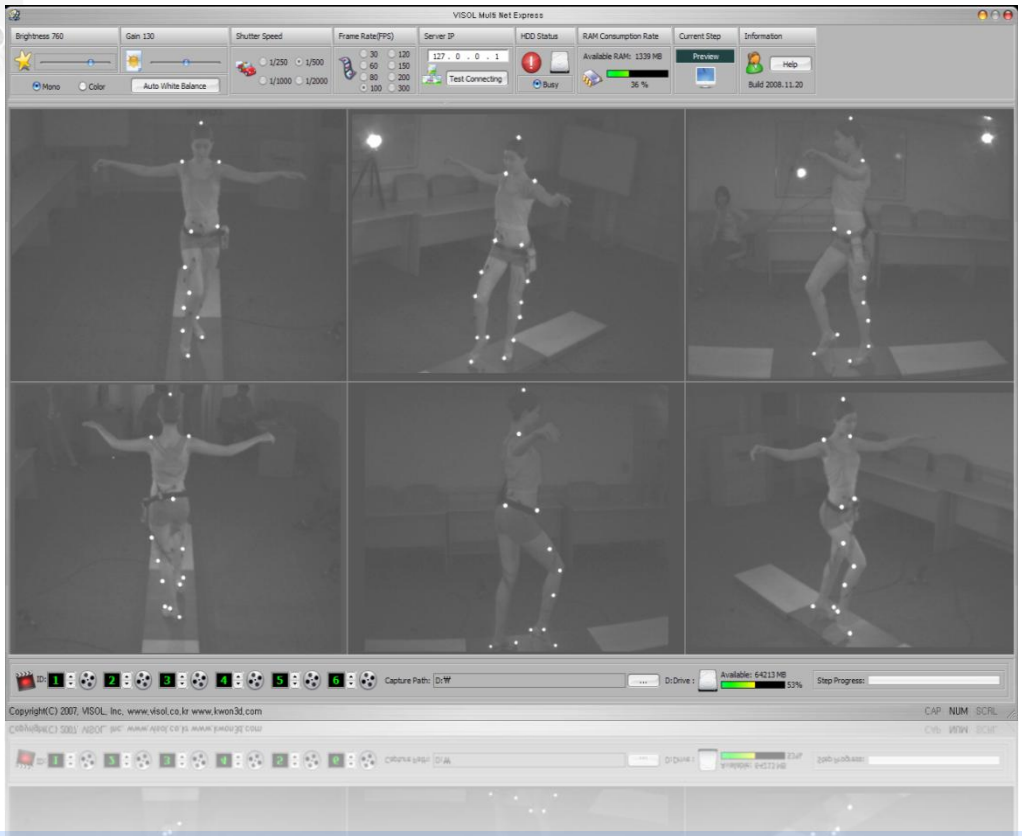
MotionMaster System

Video Based System



Synced with H/W Trigger

Video



- 1대의 PC에서 최대 6대의 VISOL Motion Master 카메라로부터 H/W Trigger로 동기화된 100FPS(659 x 490) Progressive 영상 Preview, Capture to AVI
- Kwon3DXP S/W 와 최적화된 협업 지원
- Brightness, Gain, Auto White Balance Control

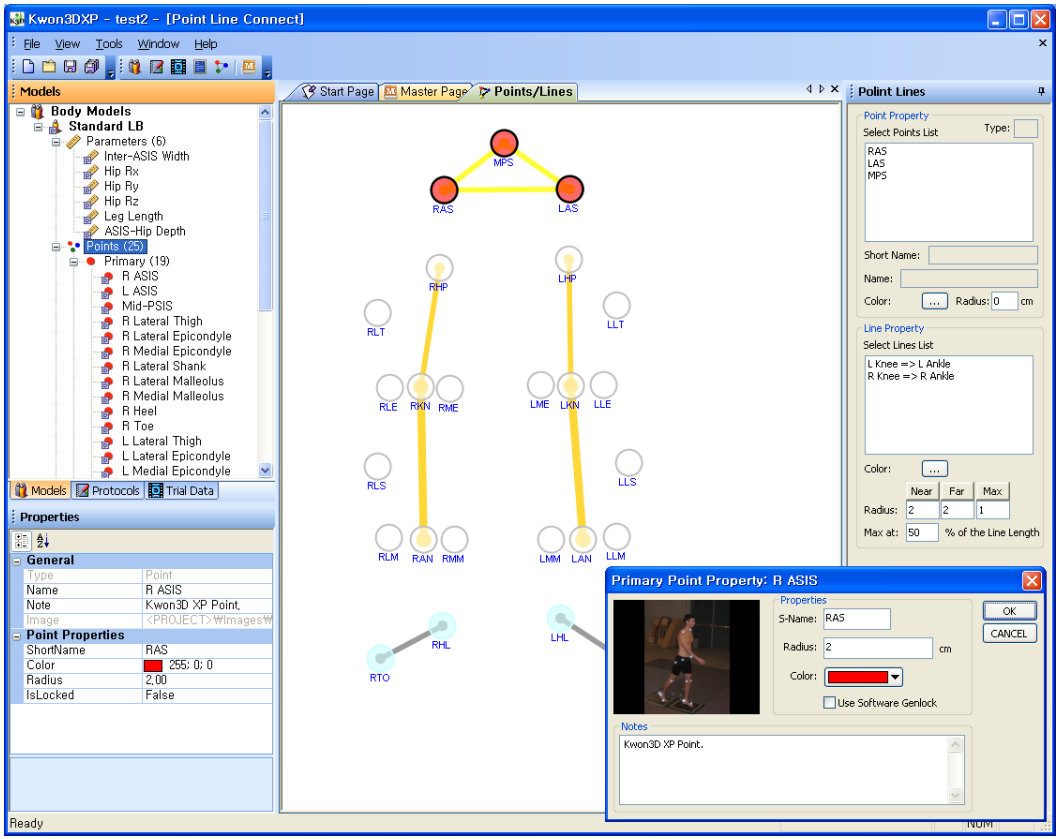
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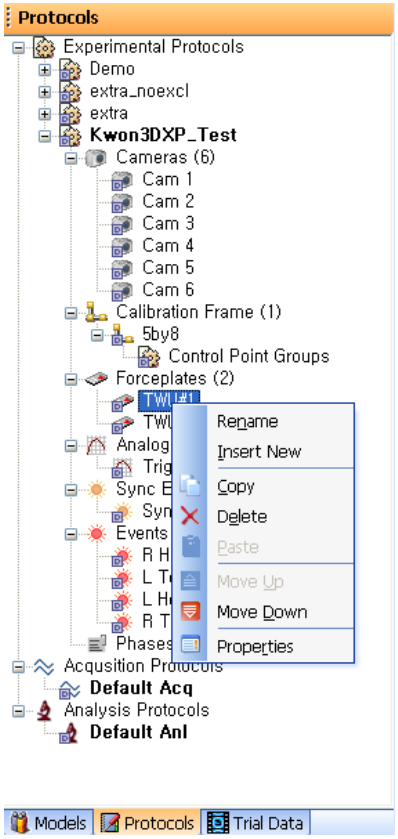
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3D Motion Analysis System

Analysis Parameters set-up

Physical Quantity Setup of Point, Body and Angle necessary for motion analysis





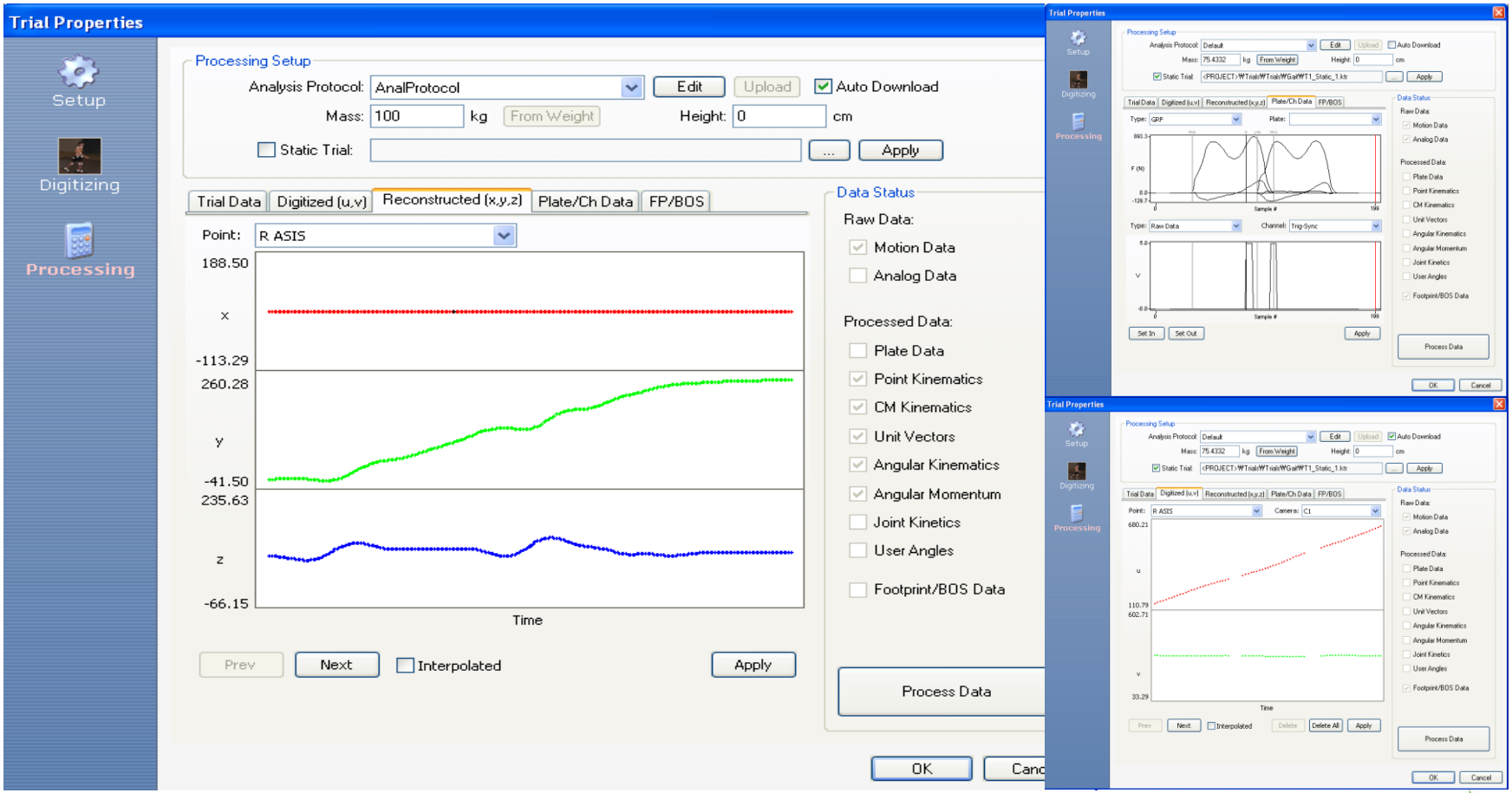
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3D Motion Analysis System

3D Data Processing

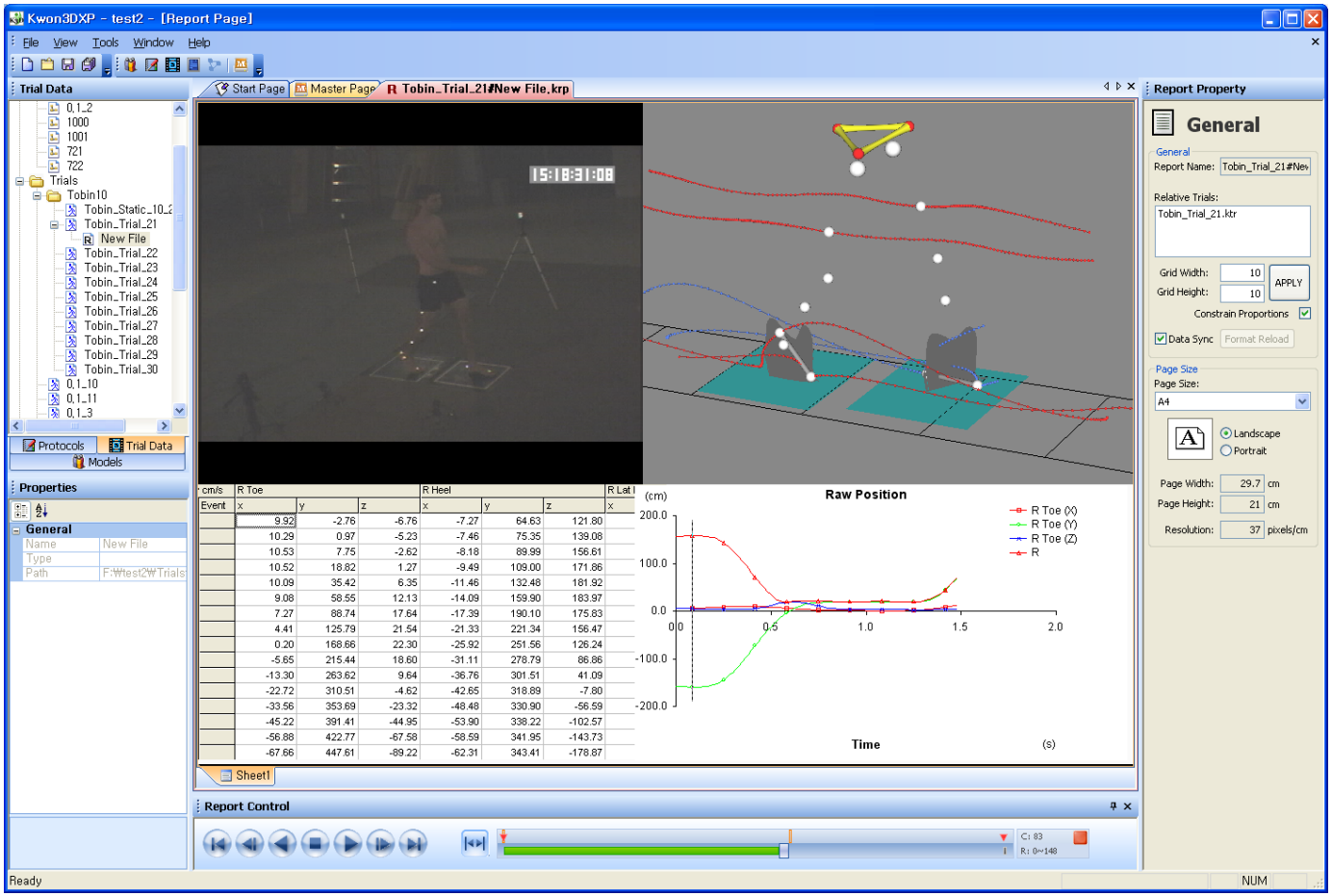
Using 2D Coordinates acquired from cameras, calculate 3D Coordinates Data, then computate physical quantity through all motion analysis algorithm.



3D Motion Analysis System

3D Data Analysis Report

Data analysis and Print out of 3D animation and physical data and graph.



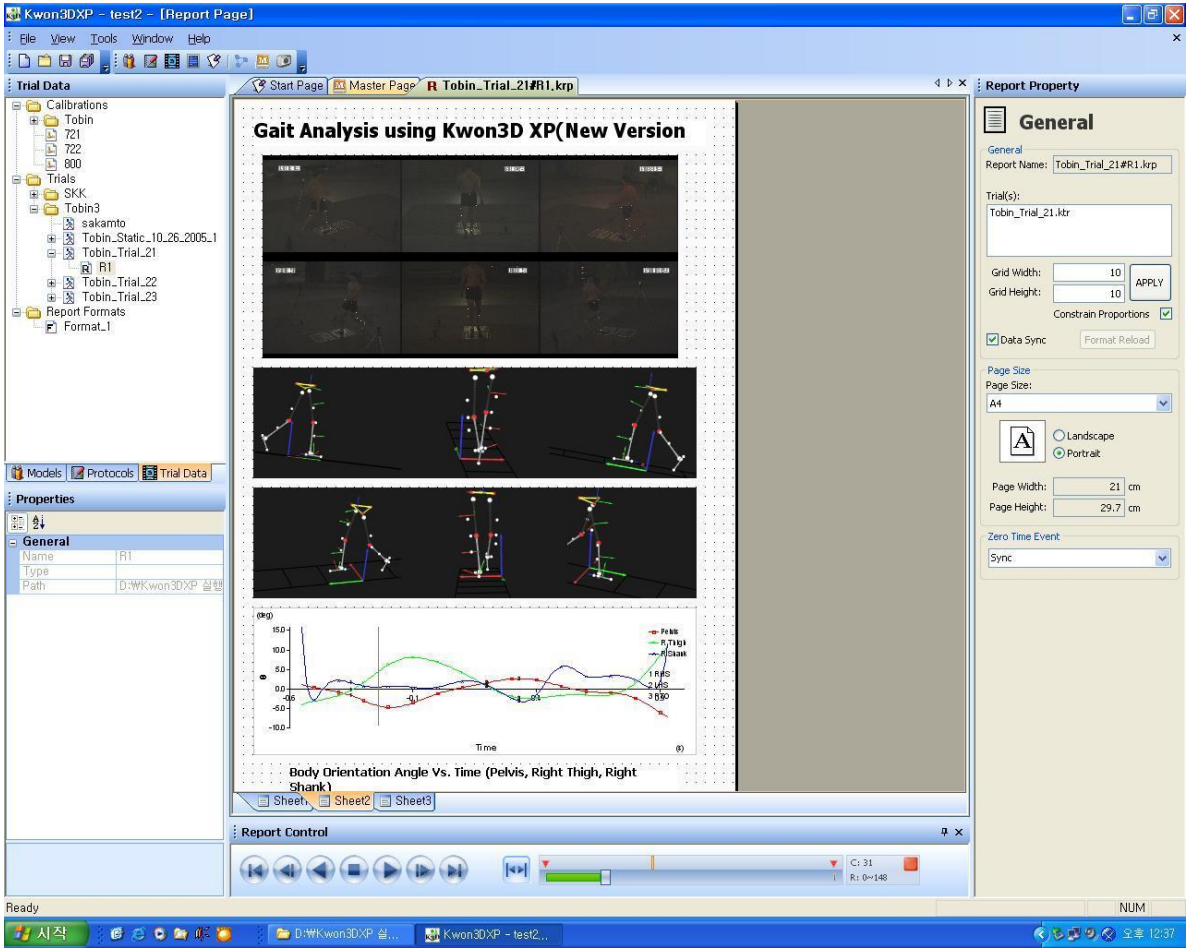
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3D Motion Analysis System

3D Data Analysis Report

Reporting Support based on various WYGIWIS of the types of Video, 3D Stick Figure, Chart, Text, Picture.



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3D Motion Analysis System

Sample(Hospital Applications**)**

Motion Analysis



Imaging Device



Multi-Capture Controller

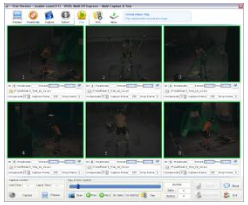


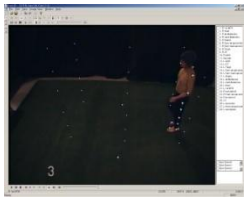
A/D Synchronizer

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Kwon3D XP









Injury Diagnosis

Patient Test

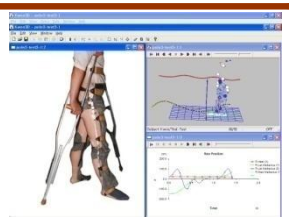
3D Motion Analysis

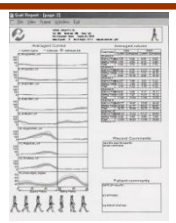
Theraphy & Presription

Physical Theraphy









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3D Motion Analysis Data Acquisition Device



Imaging Device

- Motion capture device
- MotionMaster100
  : VGA(656 x 490) @ 100fps, Built in IR LED
- MotionMaster200
  : VGA(640 x 490) @ 200fps, Built in IR LED



Force Platform

- GRF(Ground Reaction Force) Analog data acquisition



EMG System

- Measures muscle activity from the skin
- Surface electromyography



Retro Reflective Markers

- Base unit for 3D motion analysis



Trigger Master

- Multiple MotionMaster camera sync unit
- IR LED power supply



A/D Synchronizer

- Acquire GRF(Ground Reaction Force) data
- Synchronization data from 3D image, GRF. EMG and other equipments
- 16 or 32 channel analog data input
- Manual/Audio/External triggering



Calibration Frame

- Normal tools for 3D space coordinates

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3D Motion Analysis System

Control Object

Control & Analysis Part

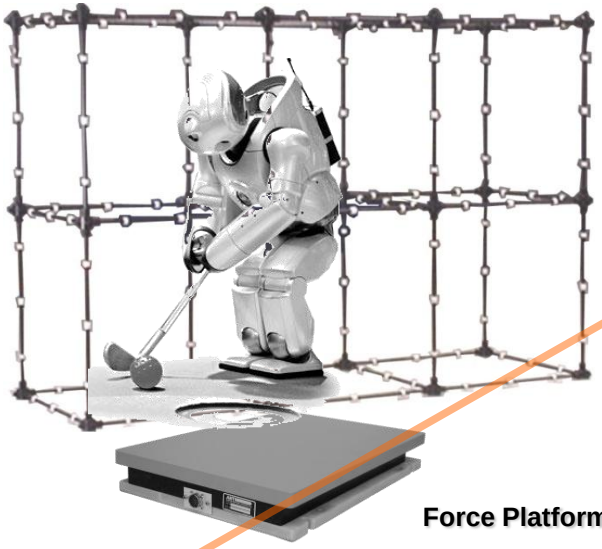


Multi-Capture Controller

Kwon3D XP



Kwon3D XP
3D Motion Analysis Software



Force Platform

Imaging Device & Accessories



Photo Cell



MotionMaster



Photo Cell



Sync. LED



A/D Synchronizer



EMG System

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Product History

- **1994 - Kwon3D Software 1.0 Version**
  : MS-DOS , FILM Storage
- **1996 - Kwon3D Software 2.0 Version**
  : MS-DOS, Tape(Analog) Storage and VCR
- **2001 - Kwon3D Software 3.00.001 Version**
  : Windows 2000, Tape(Digital) Storage and DV Camcorder
- **2003 - Kwon3D Software 3.01.001 Version**
  : Windows 2000, Memory(HDD, DVD) and Various Device
- **2006 - Kwon3D Software XP Version**
  : Windows XP and Memory Storage,
  : IR or Visible Imaging Devices and Software Analysis
  : VISOL Multi Net Express
  : High Speed Camera System(100Hz) for Multi-Capture
- **2007 - Kwon3DXP Report Viewer**
- **2009 - High Speed Camera System(MotionMaster200) for Multi-Capture**

Thank you for your attention!

www.kwon3d.com

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