

Bainisha[®]

**Unprecedented High Definition Joint
Dynamics Mapping with "Second Skin" Patch**

Applying & activating the patch



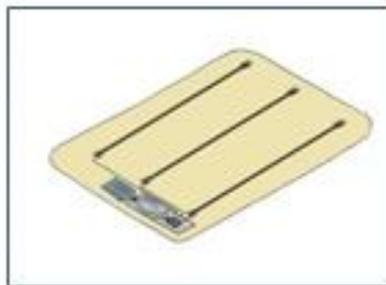
- Clean the skin and apply self adhesive patch
- Log in the system & detect patch
- Film knee-bends until video calibration OK
- Confirm & Done *

* Provided all administration has been done beforehand.



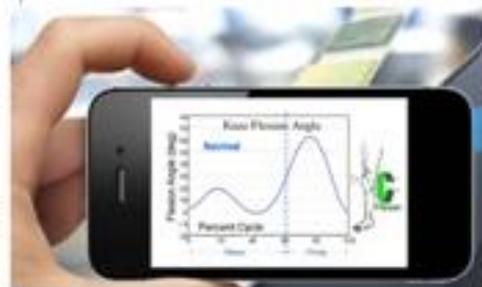
Active System

Wireless Sensor Patch



Low energy local transmission

App & Local review.



Data Processing



User interface patient/customer.

Reporting/
receivers

Medical

De-localized hubs.

Home Care



Family



Projected applications

1. Post arthroplasty assessment process

Detect low level anomalies such as not walking symmetrical (limping), or distributing weight unfavourably during post arthroplasty rehabilitation.

Goal: Reduce or avoid the dreaded knee/hip re-operations.

2. Diminishing top-down coordination

One step up in complexity. Detect the very slow change in gait patterns i.e. between the intended knee-angle and the actual bending by comparing fragments of daily walking routine.

Goal: Fall prevention with the elderly (Stair Case Deaths).

3. Early Warning of Alzheimer's Disease

Third stage is a High Definition Comparative Gait Analysis which would enable to distinguish between particular types of slow degradation of gait. Based on a large body of supporting evidence this can be used to detect the very earliest indications of Alzheimer's disease.

What are "High Definition Joint Dynamics" and why is that important ?

The ultra-thin, multi-layer polymer technology used in the Bainisha concepts is a new generation of displacement sensors. The measurements results of these sensors are direct (no mathematical filtering), very precise (0.3% of the displacement) and extremely fast (+1000 Hz). This allows capturing any displacement with an unprecedented resolution i.e. with High Definition.

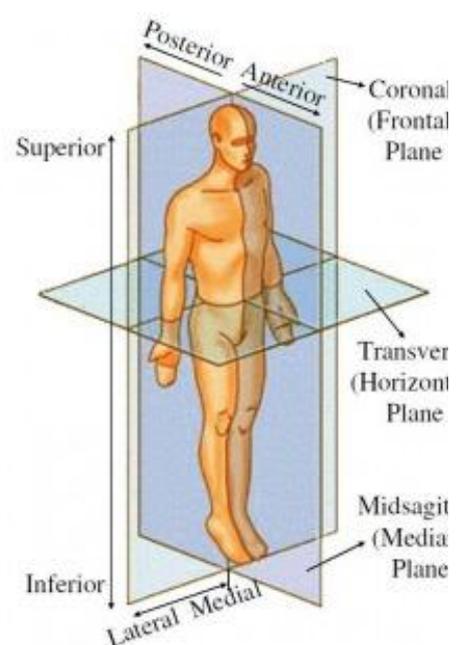
The paramount advantage of this huge performance leap is that it allows to compare very similar moves at an hitherto unattainable resolution and hence identify extremely small differences.

Why is a "Second Skin" Patch necessary ?

The number one requirement for obtaining Medical Quality Human Body Motion Capturing is *An Absolute Body Reference Frame*.

This means that the sensor(s) MUST, at all times, remain at their **exact** original location without even the slightest risk of shifting or drifting.

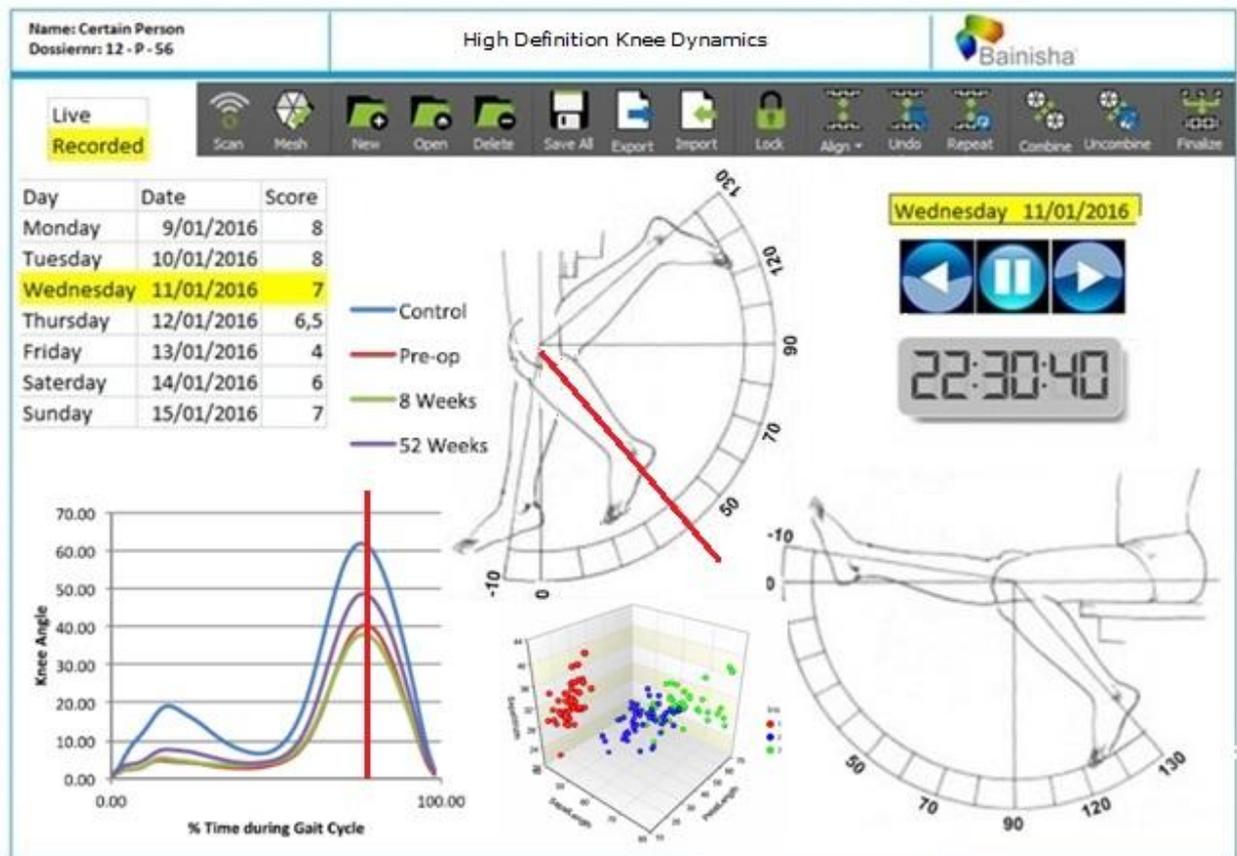
Since the "Second Skin" Patch is "locked" to the body of the patient, this most notorious (and for smart textiles most elusive) & unambiguous requirement is firmly met.



Current development phase

Preparing to organize clinical testing. The aim is to accommodate as much feed-back as possible. This shall enable us to translate the unprecedented sensor capability into a user-friendly tool allowing easy access to (personalized) relevant data.

Please contact us if you want to get involved in a joint MedTech development program. Our platform is generic and can be adapted to accommodate a wide variety of specifications.



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