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**WIMU Instrumentation of Assassin Trainer & Skeleton Sled – Initial Data Capture**

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**Motivation**

**Skeleton**
Winter Olympic Sled Sport 1km+ Downhill Ice Course High Speeds (140km/h) Large Accelerations (5g) Fractions of Second Crucial!

**Start period**
20-30m Pushing & Loading Complex Explosive Movements Believed Critical to Performance Not Well Understood or Studied Room for Improvement?

**Loading**

**Collaborative Project**
University of Bath & UK Sport Tyndall’s Sensor Expertise Instrument Athletes & Equipment Investigate Start Period & Training Improve Athlete Performance?

**Implementation**

**What’s a WIMU?**
Wireless Inertial Measurement Unit

**Assassin Start Trainer**
Training System for Sled Starts Rolling Sled on Adjustable Incline Mounts for Resistance Bands & Weights Attach WIMUs to Sled Metal Spurs Basic Timing Data - 2 Portable Light-Gates Multiple Runs - Different Weights & Inclines

**WIMU on Assassin**

**Skeleton Test Track**
Practice Track for Sled Start Concrete with Wheeled Sled on Metal Rails Attach WIMUs to Plates on Sled Corners Base-station Near Loading Point Detailed Timing Data -13 Embedded Light-Gates Multiple Runs - Different Step Count & Push Style

**WIMU on Skeleton**

**Outcome**
WIMU Data was successfully recorded for 35 Assassin and 11 Skeleton runs with average sensor sampling rates in the 100’s of Hz per WIMU. Such WIMU based systems show great potential for skeleton performance analysis and possibly becoming part of elite athlete’s strength and fitness training. Future work will involve getting more data, instrumenting the athlete and focusing on the stages of the skeleton run beyond the initial pushing and loading period.