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Summary

Crouch Touch Pause Engage Measure

The familiar phrase “Crouch Touch Pause Engage” reflects the importance of the scrum as an act of restarting play after an infringement in the modern game of rugby. Two opposing packs of forwards group together with heads down and arms interlocked and push against each other to gain ground.

Rugby teams train for scrum engagements through various equipment – coordinated player pushing power being a critical parameter in executing a successful scrum engagement. The Munster Rugby intermediate level scrum training machine allows the scrum coach the functionality to exert forces on the scrum via hydraulic rams, but has no capability in relation to quantifying the scrum performance. The scrum coach is reliant on his ability to observe performance.

The objective of this research and development project is thus to increase the functionality of the Munster Rugby existing intermediate level scrum machine to the level of an advanced scrum machine with performance measurement capabilities.

The author was given carte blanche to redesign and remanufacture the structure and mechanisms and design, develop and implement from first principles a scrum performance measurement system.

A systematic design approach was adopted to assess various physical measurement systems. A spring / linear potentiometer based measurement system was designed, manufactured and implemented. The front section structure of impact pads, individual springs, support box iron and guide rails was completely redesigned and remanufactured to incorporate the designed measurement system.

The developed advanced scrum machine consists of an instrumented redesigned front section which readily and simply inserts into the existing hydraulic section of the original Munster Rugby scrum machine.

Extensive programming was undertaken to develop a large suite of software to support the developed data acquisition and performance measurement system. A virtual instrument was created to provide the scrum coach with live / recorded feedback and graphical readout of individual impact and full scrum measurements.

Comprehensive supporting software including a user friendly “Stop and Go” coach and player User Interface based on the Labview Graphical Programming platform to illustrate all scrum measurements graphically and numerically was developed and fully validated. Initial validation of the Advanced Scrum Machine force measurements was undertaken. Further testing is planned and the machine is scheduled to be implemented into Munster Rugby’s training regime.

