Mobile Motion Advisor – University Sport

MMA – University Sport – Cumulative Distances

Distances are covered cumulatively

You finished in 43:45

Start   500m   1km   1,5 km   2 km   2,5 km

Te(a)chIn Sport
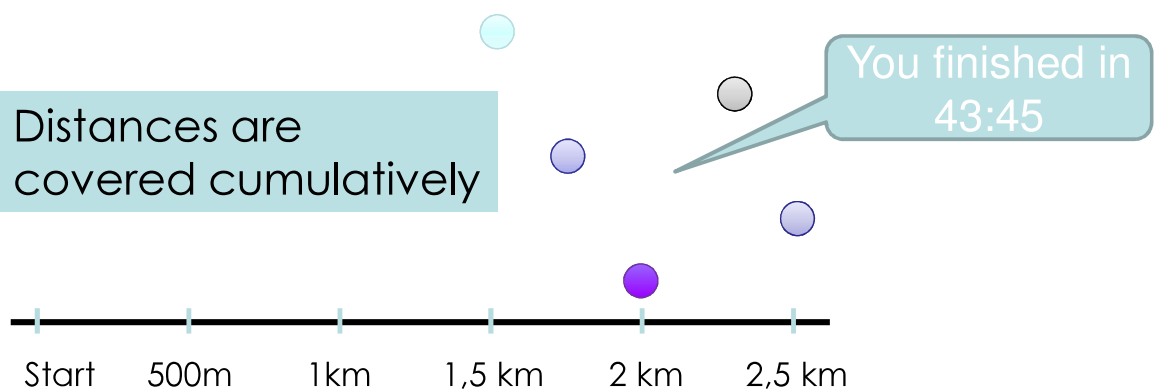
Game activity "**ZONE Play**"

Aim of the game is that students exercising in groups should move to certain positions/zones in the shortest possible time

Predefined scenarios – guide individual from initial position to target zone or organize whole team in specific group pattern
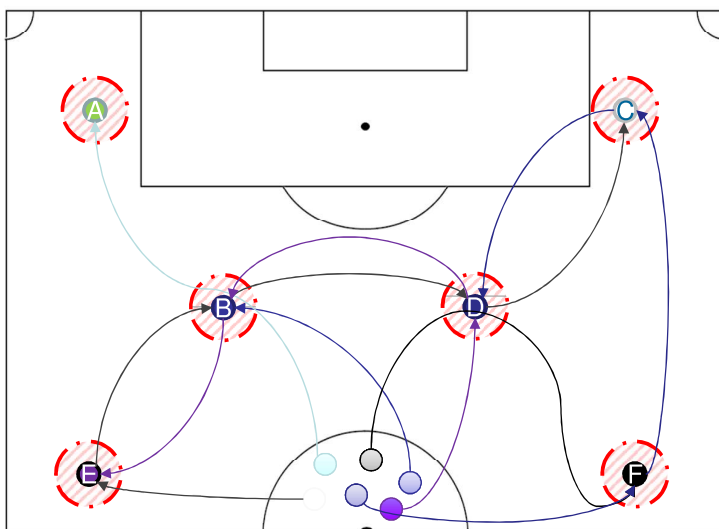
Students move freely – can hear acoustic signals from smartphone / see visual aids on display

Game utilises GPS coordinates

Evaluation of single student's performance as well as of team score incorporates results of fitness assessment

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MMA – University Sport –Zone Play

All players start in the center circle

App generates start signal and players start running

When one player is inside a zone, App is signaling if it was the target zone (timer stops) or not

Game round over when all players have reached their target zone

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For every performed activity: Score for each student/athlete – based on estimated fitness/performance levels

Challenge for students: Individual performance development / local/remote competition against colleagues

http://teachinsport.eu/

## MMA: Example cardiopulmonary (Phase IV-) rehabilitation
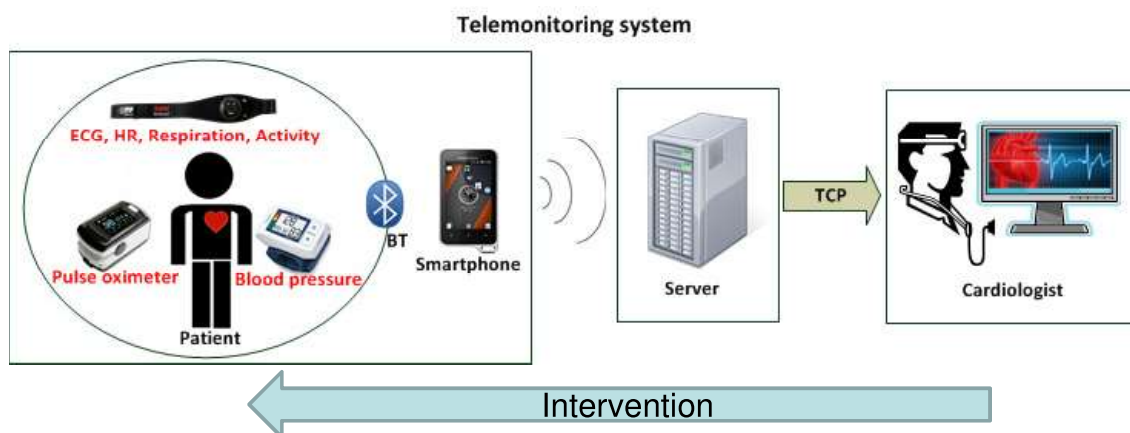
"Wireless system architecture for long term (i.e. several hours lasting measurement) monitoring of instantaneous electrocardiographic and respiratory data immediately during training activities not only at home, but at any arbitrary time and place" (Baca et al., 2013)
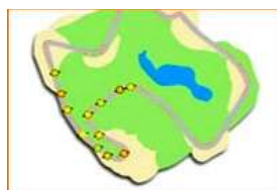
CONTENTS

- ➤ **Pervasive Computing**
- ➤ **Wearables and Apps**
- ➤ **Intelligent Systems**
- ➤ **Example: MMA**
- ➤ **Perpectives & Conclusion**
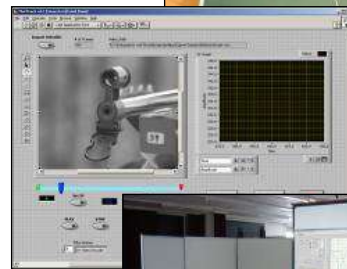
PERSPECTIVES

- ➤ Standard devices (e.g. smartphone) & Interfaces should guarantee sustainability and compatibility

- ➤ Wireless Technology provides flexible connectivity and mobility for applications in many sports/activities

CONCLUSION

➤ **Pervasive Computing Methods** improve training efficiency and information transfer

➤ **Innovative Technology** (sensors) facilitates the development of user friendly systems

➤ **Adequate Design** of the presentation component is essential

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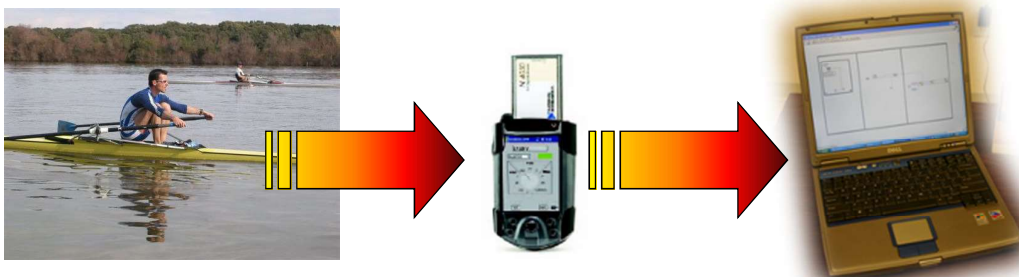
References

Baca, A. (Ed.) (2015). Computer Science in Sport. Routledge.

Baca, A., Dabnichki, P., Heller, M. & Kornfeind, P. (2009). Ubiquitous computing in sports: A review and analysis. Journal of Sports Sciences, 27 (12), 1335-1346.

Baca, A., Kornfeind, P. (2006). *Rapid Feedback Systems for Elite Sports Training*. IEEE Pervasive Computing, Vol. 5, No. 3, pp. 10-16.

Baca, A & Perl, J (Hrsg.) 2018, *Modelling and Simulation in Sport and Exercise*. Routledge.

Dobiasch, M., Baca, A., Endler, S. (2018). Development and evaluation of a feedback System for endurance running(PerPot-live). In H Dancs, M Hughes, A Penichet-Tomás, J Gaillart & A Baca (Eds.), *Recent Researches in Sports Science*. Savaria Univ. Press / Praesens, S. 41-48.

Baca, A., Kornfeind, P., Preuschl, E., Bichler, S., Tampier, M., & Novatchkov, N. (2010). A server-based mobile coaching system. Sensors 2010, 10, 10640-10662.

Stevens, G., Wulf, V., Rohde, M. & Zimmermann, A. (2006). *Ubiquitous fitness support starts in everyday's context.* In E.F. Moritz & S. Haake (Eds.), The Engineering of Sport 6. Volume 3: Developments for Innovation (pp. 191-196), Springer.

Tampier, M., Baca, A. & Novatchkov, H. (2012*). E-Coaching in Sports*. In Y. Jiang & A. Baca (Eds.), Proc. 2012 Pre-Olympic Congress on Sport Science and Computer Science in Sport (IACSS 2012), Edgbaston: World Academic Union.

Thank you for your Attention