

# Wireless System for Automated Score-Keeping System in Foil Fencing

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## Background

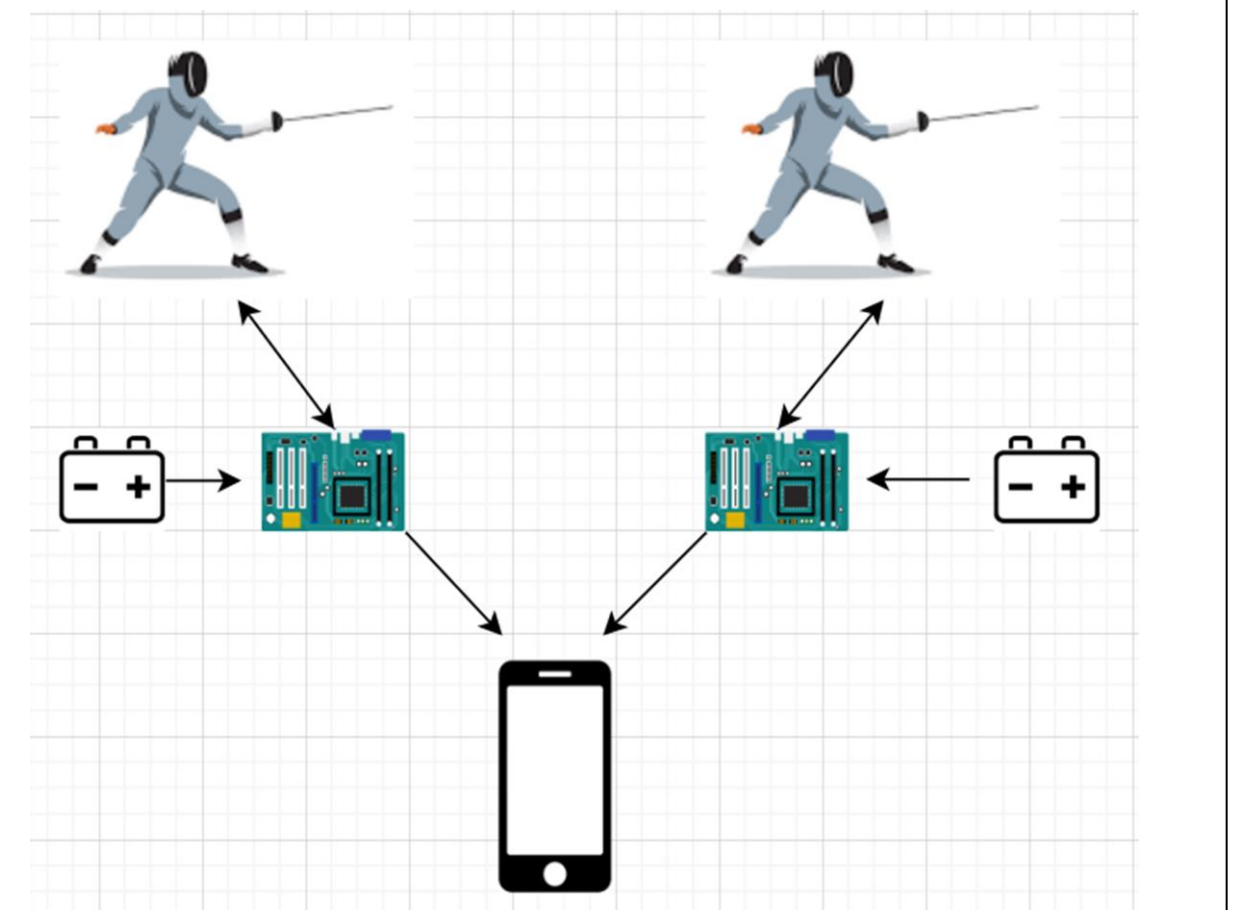
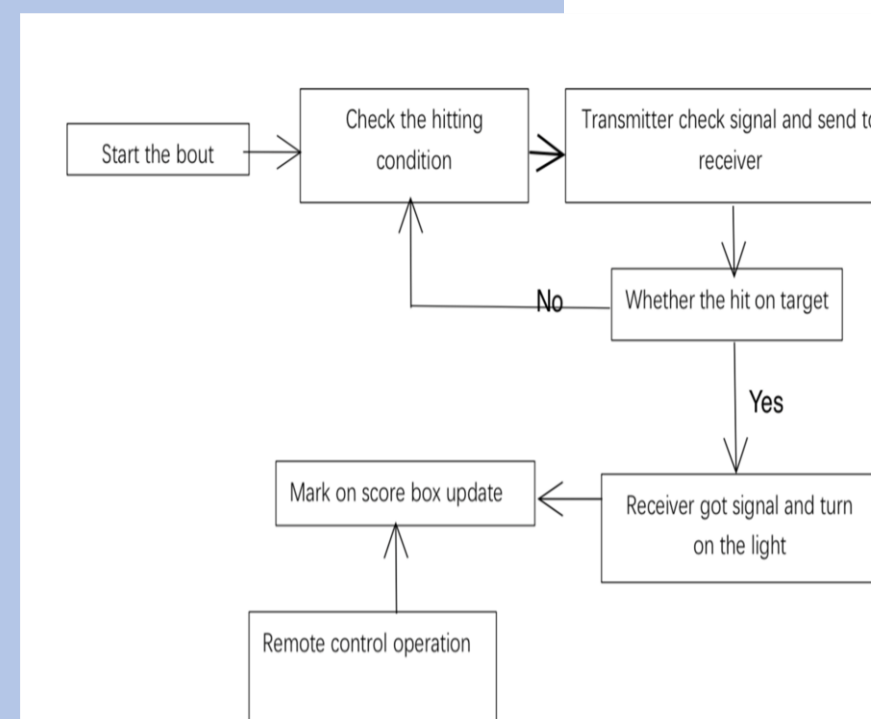
Fencing is one of the four founding sports in the history of modern Olympics. There are three different types of fencing and for this project, we will be focusing on Foil fencing. The foil is a flexible blade with a total length of 110 cm and the blade length of 90 cm. Fencers can only score when a valid hit happens by striking the point (tip) of the foil (blade) on the defined target area (torso), which is defined by a metallic jacket called lame in an electric scoring system aided bout.

The traditional fencing scoring system is tethered which limits the performance of the fencer during the bout and the few existing wireless scoring systems in the market right now has the price ranges from CAD \$1100-\$1700, which is a hefty price for fencing clubs which consist of several fencing arenas. Therefore, for this project, we will design a more affordable wireless fencing scoring system with the giving budget of \$500

## Objective

- Transmitters register, distinguish and send touch signals.
- A reader receives the signal sent by the transmitter.
- A score box displays the time and scores
- Remote control used by the referee

## System Overview

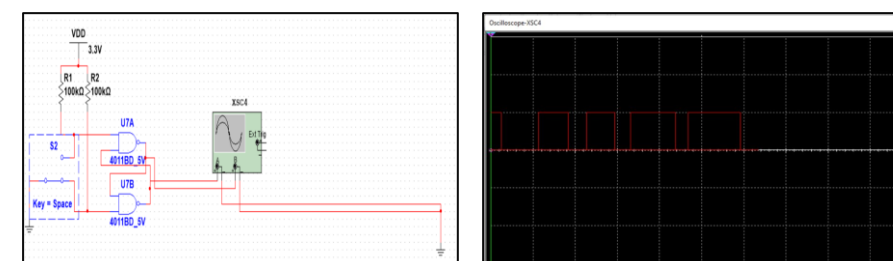


## Testing & Results

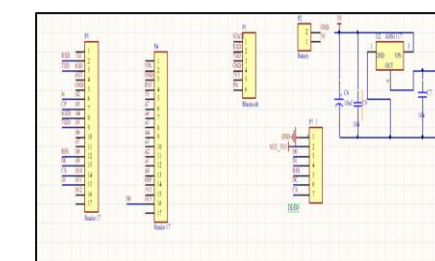
### Differentiating Hits



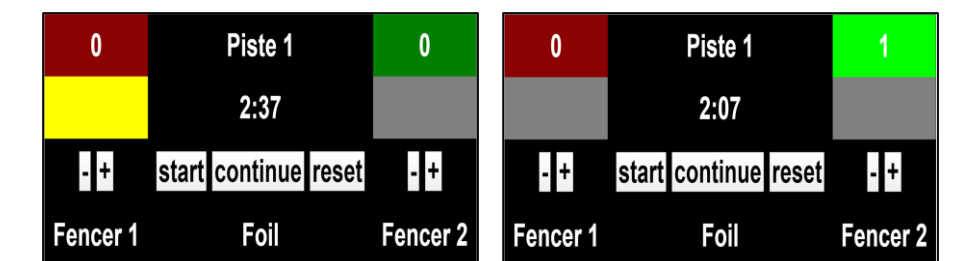
### Transmitter System



### Receiver System



### Scoreboard



## Acknowledgements & References

- Thank you to our professors, lab technicians, and client – Robert Adamson
- Special Thanks to our internal supervisor Dr. Jacek Ilow
- Dalhousie University

## Future Work

- Use built in Bluetooth module on the microcontroller
- Improve efficiency of the entire system
- Improve power efficiency for a longer battery life
- Make the Bluetooth connection more user friendly and simpler

## Conclusion

- A proof of concept of the Wireless System for Automated Score-Keeping in Foil Fencing has been achieved
- The overall system architecture was verified
- The ability to accurately differentiate between valid and invalid hits has been verified