

FOUNDATION BOARD REPORT

Prepared: Lawrence Jones

Date: October 2019

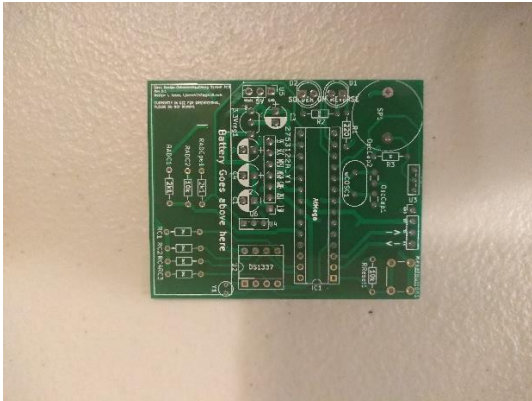
Open Design Orienteering Timing System

This Board report is presented at the successful completion of the proof of concept of the Open Design Orienteering Timing System funded by the Foundation.

The objectives of the Open Design Orienteering Timing System (ODOTS) proof of concept were:

- Provide an alternative open source timing system to the proprietary EMIT and SI systems
- Design a timing system which would allow the creation of a timing system infrastructure at low cost to users, specifically club coaches and schools
- By providing a low cost open source timing system expand the ability of orienteers to gain the benefits of timing systems namely data driven training and performance coaching

Overview of work completed



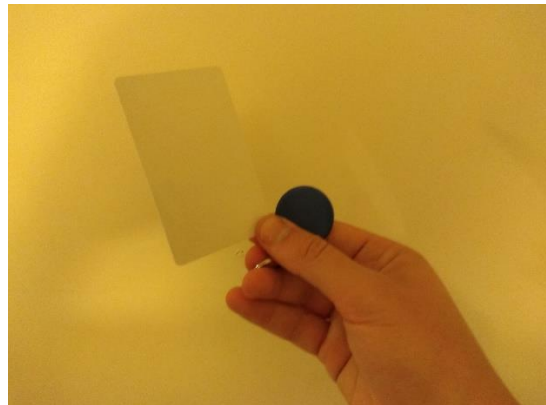
1 ODOTS Printed Circuit Board.



2 Completed ODOTS Electronics.



3 ODOTS Proof of Concept Units.



4 Two example ODOTS timing cards, these two came free with the electronics.

The project has produced the hardware and software required to run a proof of concept demonstration of the ODOTS. This includes the physical hardware required by both competitors and controls to register punches and software required to interpret competitor punch records and pass them to competition management software. Specifically:

- A Proof of Concept timing system, complete and ready for demonstrations.

- Full software documentation of both embedded firmware and card information download software, to provide an entry point for new developers.
- Full Electronics Hardware Design and Documentation including ready to use Gerber files for users wishing to order Printed Circuit Boards from Manufacturers.
- Preliminary enclosure adaption notes, the proof of concept system uses a commercially made enclosure, the documentation provides notes on how to adapt it.

The timing system can be made for approximately £21 per checkpoint unit and less than £1 per competitor timing card. The electronics hardware supports sub-second timing precision over 24 hours and can run for just over two days between battery charges.

Budget overview

Grant funding:

The Foundation provided a Grant of £250.

Expenditure:

Item	Amount
Development Hardware	£73.15
<i>RFID Evaluation Hardware</i>	<i>£30.85</i>
<i>Microcontroller Development Hardware</i>	<i>£16.00</i>
<i>Electronics Development Hardware</i>	<i>£26.30</i>
Proof of Concept Components	£184.77
<i>RFID Boards</i>	<i>£45.02</i>
<i>PCBs</i>	<i>£9.09</i>
<i>Microcontrollers</i>	<i>£26.00</i>
<i>Real Time Clocks</i>	<i>£16.96</i>
<i>Other Components (Mostly Passive)</i>	<i>£87.70</i>
TOTAL	£257.92

Release of Design Materials

As anticipated in the application all designs documentation and software used to build and run an ODOTS have been released into the public domain. Accessibility of all elements has been prioritised to ensure ease of use for non technical specialists.

The front page for this release is the webpage here: <https://ljones278.github.io/ODOTS-Release/> . An ongoing design blog to add detailed information and support users has been kept here: <https://justonemoresistor.blogspot.com/search/label/ODOTS> .

Next Steps

- Demonstrate the system with participation from Orienteers in mid-November.
- Ongoing design improvement.

This concludes the grant funded element of the project. An additional update will be provided when the system demonstration has been completed, in the meantime questions can be directed to l.jones278@gmail.com.