

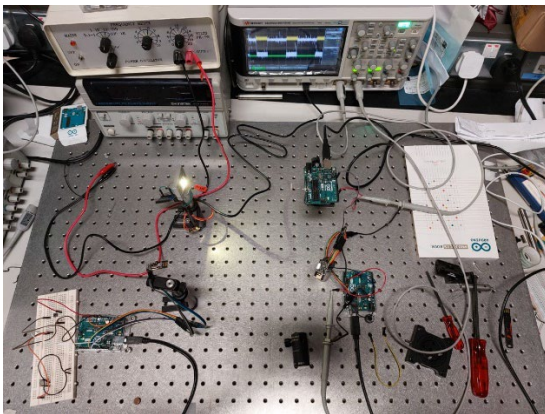


## Charlemont grant report

Recipient name:	Dr Xiping Wu
Discipline and subject area:	Sciences
Amount and year awarded:	€1,923 in 2022
Title of project:	Transceiver Design for RF-VLC Parallel Transmission with Joint Signal Processing.

### Summary of findings:

The project generates a successful experimental implementation of the parallel transmission of visible light communications (VLC) and radio frequency (RF). Specifically, two Arduino boards are able to communicate with each other wirelessly, while aggregating the link data rates of VLC and RF. This experiment demonstrates a proof of concept of using VLC and RF at the same time for wireless communications. Upon this experimental result, further improvements are feasible to integrate VLC and RF at a higher level, to achieve better communication performance and a more compact design of the transceiver.



### Plans for continuing collaboration:

The grantee and the partner are planning a research proposal for EPSRCSFI joint programme, continuing the collaboration.



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### **Published work and publication plans:**

One journal paper has been submitted to IEEE Journal on Selected Areas in Communications (JSAC), which is one of the top journals in the communication area. Below are the paper's details:

Hi Ji Q Wang, SJ Redmond, I Tavakkolnia, X Wu, "Adaptive Target-Condition Neural Network: DNN-Aided Load Balancing for Hybrid Lifi and WiFi Networks", (submitted to) IEEE Journal on Selected Areas in Communications (JSAC), 2022.

### **Dissemination and plans for future dissemination:**

A presentation will be given at IEEE GLOBECOM 2022 on December 2<sup>nd</sup>.

### **Collaborations and planned collaborations:**

The grantee was collaborating with multiple academic and industry partners across Europe including Institute of telecommunications (Portugal), CentraleSupélec (France), Fraunhofer Heinrich-Hertz Institute (Germany), ZER01 (France), PureLifi (UK), etc., to jointly apply for a MSCA\_DN project on the topic of network convergence in 6G.

### **Outreach and engagement activities:**

Invited public lecture at Chuanyu Forum (online, Oct 13<sup>th</sup>, 2022).