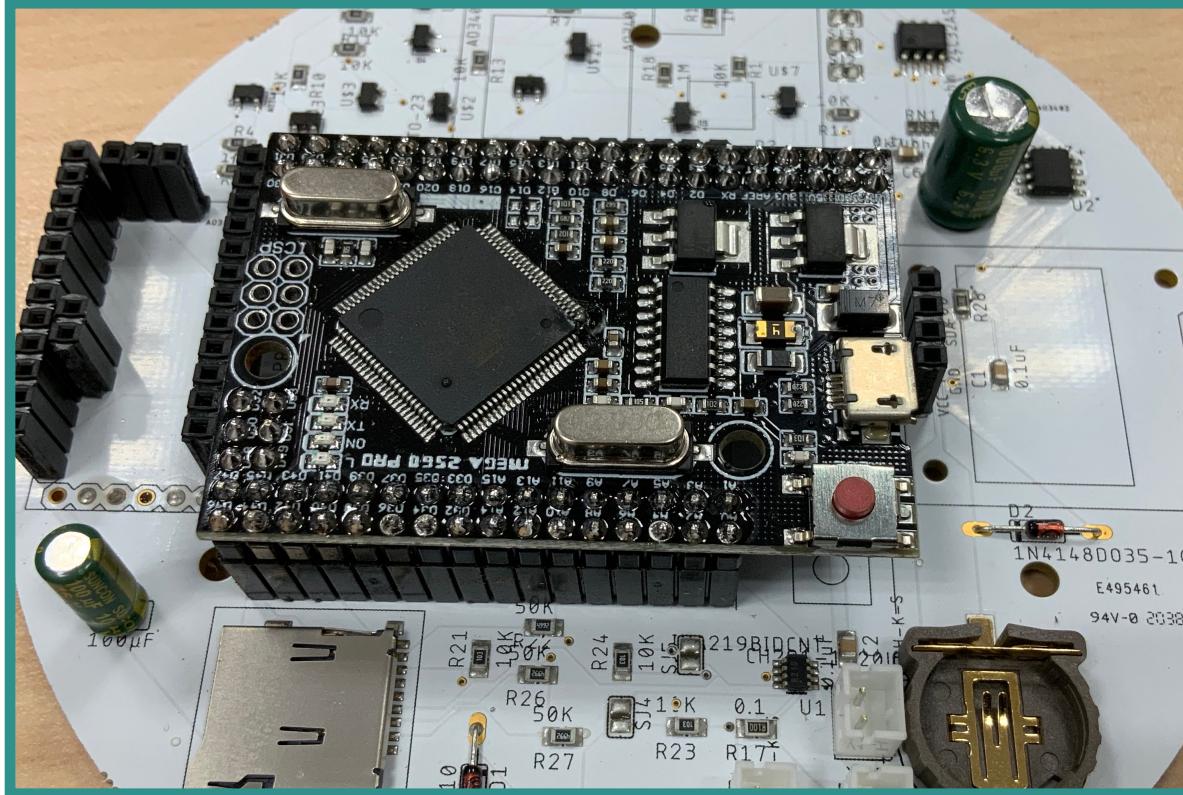


簡旭伸、陳正平、陳伶志、
莊振義、謝宜桓、鍾明光、
臺大系統舒適度+工作團隊



臺大系統舒適度+ 研究通訊

「臺大系統舒適度+」將臺大校園視為一座生活實驗室 (Living Lab)，希望透過感測器在真實場域的佈建，以創造有意義的體驗、能實用的知識、具社會創新精神的行動。這個月，計畫團隊開始舉辦工作坊培訓校內的種子學員，並將室內空品感測器應用於學務處的「教學環境品質」與環安衛中心的「高風險教室」等課題，期望能將計畫成果連結到校內的實務課題，共同提升臺大的教學環境品質。此外，我們也從大學社會責任實踐 (USR) 的關懷出發，與長期關注社區環境議題的文山社區大學合作，逐步將計畫的學研成果拓展至周邊社區，希望能以此為基礎，提升市民對於氣候變遷的環境識覺與行動量能。

SC+NTU regards the campus of National Taiwan University as a living laboratory (Living Lab), hoping to create meaningful experiences, practical knowledge, and socially innovative actions through the deployment of sensors in the field. This month, the project team began holding on-campus workshops to train seed students, and installed indoor sensors in the “quality of teaching environment” room of the Academic Affairs Office and the “high-risk classroom” of the Environmental Safety and Health Center. Through these actions, we hope to link the project results to the school’s practical issues and jointly improve the quality of NTU’s teaching environment. Additionally, following the University Social Responsibility Practices (USR), we work in cooperation with Wenshan Community College in Taipei City, which has long been concerned with community environmental issues. From this collaboration, we aim to gradually expand the planned academic research results to surrounding communities; and on this basis, improve citizens’ environmental awareness and capacity for action to address climate change.

地理系 305 教室 安裝 MAPS6.0

Installation of MAPS 6.0 in classroom 305 of the Department of Geography

計畫團隊於地理系 305 視聽教室安裝一台室內空品感測器，並架設於桌面上方 30 公分的高度以模擬學生的呼吸位置，希望利用微型感測器的彈性布設優勢，產製更貼近生活情境的數據。同時，計畫團隊也提供解說牌與 QR Code，讓學生能即時上網檢視空品數據的變化趨勢。

09/24



09/26



儀器工作坊

Instrument Workshop

在 IPCS 舉辦首次感測器工作坊，除介紹計劃的目標與願景外，講師群也以 **Arduino Pro Mini** 的主機板作為基礎，讓學員體驗如何透過韌體的編寫，驅動一個簡易的溫濕度感測器。後續，計畫團隊會持續舉辦工作坊，讓校內的學研社群能更熟悉感測器的運作原理及應用範疇，藉以吸引更多伙伴參與「臺大系統舒適+」的行動。



台灣大哥大贊助 Taiwan Mobile sponsored 10 LTE IoT cards

台灣大哥大提供 10 張 **LTE SIM** 卡，協助移動版感測器的即時傳輸功能測試，共同發展適合都市環境的移動感測方案。

09/28



10/06



博雅施工教室 安裝兩台 MAPS6.0

Installation of MAPS 6.0 in two classrooms of Liberal Education Classroom Building

博雅教學大樓教室將進行為期一個月的整修工程，計畫團隊前進此教室，分別安裝兩台 **MAPS6.0** 於教室內外，以搜集施工期間之環境數據。

ArcGIS Dashboard 教育訓練 ArcGIS Dashboard education training

邀請 Esri 的台灣代理商互動國際，為學生進行 **ArcGIS Dashboard** 的教育訓練，並協助本計畫的資訊儀表板開發。本次課程除介紹 **Dashboard** 的 UI/UX 設計原理與基本操作課程外，講師也以約翰霍普金森大學的 **covid19** 儀表板作為範例，說明 **GIS** 平台如何能快速轉譯大量的疫情資料，協助人們瞭解疫情擴散的趨勢並明智決策。

10/07



10/08

教務會議 學生代表座談會

Student Representative Symposium,
Academic Affairs Conference

教務處邀請計畫團隊參與「教務會議學生代表座談會」，向各院系的學生會、學代會說明「臺大系統舒適+」的感測器佈設計畫。與會學生代表除表達對本計畫的興趣與支持，亦期待後續感測數據能回饋校內各相關處室，協助提升校園環境品質。

10/19



五大教學大樓場勘 Site survey of five major Classroom Buildings

團隊成員前往博雅、普通、新生、共同與綜合等教學大樓，現勘各大型教室的通風與空間配置，並規劃室內空品感測器的佈設事宜，希望能以此為基礎，逐步建構校內各教學空間的空品趨勢線，並做為後續

10/12



文山社大 室內感測器安裝

Installation of MAPS6.0 in Wenshan Community College

計畫團隊前往文山社大辦公室安裝並解說室內空品感測器，希望以社區大學為平台，將臺大系統舒適度+的學研成果拓展至周邊社區，從而提升市民對於氣候變遷的環境識覺與行動量能。

臺大根與芽社會談

National Taiwan University Roots
and Shoots Society Talk

計畫團隊與「臺大根與芽社」討論如何利用現有的感測設備，結合學生社團的創意及動能，發展有意義的環境感測行動。

IO/I9

IO/21

MDP Newsletter 報導本計畫
MDP Programs Newsletter project report

The Global Master's in Development Practice (MDP) 所發表的十月通訊，向全球的會員們簡介本計畫，以及所發展的室內外感測器。透過 **MDP** 的報導，使得本計畫跨出國際的第一步，讓全球的永續發展合作夥伴們認識我們。

THE MONTHLY UPDATE

THE GLOBAL ASSOCIATION OF MDP PROGRAMS

OCTOBER 2020 · ISSUE 6

MAKING A DIFFERENCE: MDP STUDENTS AT NATIONAL TAIWAN UNIVERSITY'S INTERNATIONAL PROGRAM IN CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT

Anthropogenic climate change caused by the rapid increase of carbon emissions in the atmosphere has resulted in the rise in the number of harmful natural disasters, rise in sea levels, decrease in biodiversity, and threats to economies and infrastructure. Thus, it is evident that climate change affects our daily lives at the local scale. As sustainable development practitioners and scientists at the [International Program in Climate Change and Sustainable Development](#) in National Taiwan University (IPCS-NTU), it is our social responsibility to raise awareness and educate people about the environmental challenges we face today. With this in mind, IPCS-NTU has launched the Smart Campus Project, wherein we give our students the chance to treat the campus as a living laboratory. IPCS-NTU students and researchers will deploy MAPS 6.0 and NTU 4AQ systems around the campus to monitor total volatile organic compounds (TVOCs), carbon dioxide (CO₂) and particulate matter with a diameter of less than 2.5 μm (PM2.5) concentrations, temperature, humidity, and illuminance.

This project aims to establish a downscaling method for collecting and analyzing climate data while including the local knowledge and perspectives of our community. Furthermore, the data collected will be available to the public through the [Location Aware Sensing System](#) (LASS). This initiative is being conducted in coordination with the Institute of Information Science, Academia Sinica. Additionally, this project focuses on devising an urban climate action plan to form democratic climate policies, the ultimate goal being to inform the public and achieve climate justice.

Written by Mariana Reyes, Ming-Kuang Chung, Shao-Yuan Liu, Miao-Jung Chien, Yi-Huan Hsieh, and Fu-Hsiang Ching

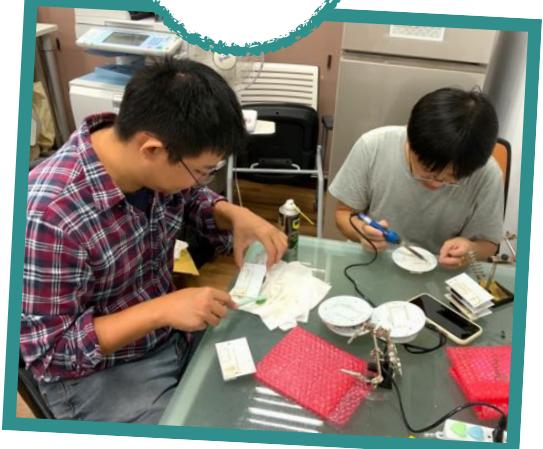


NTU4AQ 組裝培訓

NTU4AQ assembly training

為參與計劃之學生進行 NTU4AQ 的組裝培訓，內容包含模組焊接、機構組裝，以及模組測試、機構測試，主要目的為讓學生從無到有，將感測器的製作流程走過一輪，除了期待學生未來能獨立製作、維修外、也期許學生可成為獨當一面的感測器教學講師。

IO/23



IO/31

文山社大工作坊

Wenshan Community College workshop

計畫團隊前往文山社區大學進行第一次的校外工作坊【城市環境資訊識讀-以微型感測器促進社區氣候行動】。工作坊主題將著重於氣候資料釋讀與行動建構，介紹環境感測器並進行架設實作，期待共同促進文山社大之社區氣候行動。

ABOUT OUR TEAM

臺大系統舒適度+ 工作團隊



計畫主持人：簡旭伸

計畫顧問：陳正平、陳伶志、莊振義

計畫執行顧問：鍾明光、謝宜桓

工作團隊：劉紹淵、荊輔翔、簡妙蓉、林承恩、楊鑫

Principal Investigator: Shiu-Shen, Chien.

Consultant: Jen-Ping, Chen. Ling-Jyh, Chen. Jehn-Yih, Juang.

Executive Consultant: Ming-Kung, Chung. Yi-Huan, Hsieh.

Work Team: Shao-Yuan, Liu. Fu-Hsiang, Ching. Miao-Jung, Chien. Cheng-En, Lin. Xin, Yan.

ABOUT OUR TEAM

臺大氣候變遷與永續發展
國際碩士及博士學位學程

IPCS

International Degree Program in Climate Change
and Sustainable Development



臺大「氣候變遷與永續發展國際碩士及博士學位學程」，
(International Degree Program in Climate Change and Sustainable
Development, IPCS) 是整合本校相關的科學領域與人文領域之師資與課程所成立的跨學院
跨領域的國際學位學程。IPCS 透過在學科知識上，融合地球科學、社會科學、生命科學
領域，透過課程教授及共同雙指導模式，導引學生對氣候變遷及永續發展的跨領域認識；
以及透過在教學現場上，採取「抽象數理思考」，及「場域動手實作」雙軌並行方式，訓
練學生可以在場域中找尋真實問題、並且聯結書本知識提出解決方案、實際操作、回應問
題。整體而言，IPCS 擁有多元的師資陣容與完整的跨領域課程，培育氣候變遷與永續發
展跨領域與具國際觀之專業人才。

The International Degree Program in Climate Change and Sustainable Development, as its name suggests, is an interdisciplinary degree program that encompasses a global perspective. Established by the College of Science, the program is a joint effort among NTU faculty members from both scientific research and humanities backgrounds. In dealing with climate change and sustainable development, we instrument in-depth teaching in a wide range of topics. Students are required to bring their knowledge and skills to the table and approach environmental issues from a multi-angled perspective. They are encouraged to break free from traditional views on sustainability and think outside the box. Students are expected to be motivated learners, thinkers, analysts, and most important of all, practitioners. Our ultimate goal is to cultivate students' ability in interdisciplinary problem-solving in dealing with the complexity of climate change issues.

ABOUT OUR TEAM

環境感測器網路系統

Location Aware Sensing System



開源公益環境感測網路系統（Location Aware Sensing

System，簡稱 LASS）是臺灣重要的創客（maker）社群，同時也是空氣盒子、水盒子等微型感測設備的創發者。LASS 著重於公民科技與空間資訊的結合，希望藉由軟硬體的整合，設計與實現具有在地特性的環境感測系統；該社群的目標是以開源和公益為主軸，嘗試以創客/自造者的精神，從公民科技的取徑出發，以開放的軟硬體架構發展低成本的環境監測設備，讓民眾可以經由自造的過程，鋪設一套符合自己需求的感測系統。同時，LASS對於感測資料亦採取開放的態度，並允許志工可以利用其他社群夥伴所上傳至雲端系統的環境監測數據，來建置即時監測網。

The Location Aware Sensing System (LASS) is an important maker community in Taiwan, and it is also the creator of air boxes, water boxes, and other micro-sensing devices. LASS focuses on the integration of citizen technology and spatial information, aiming to design and implement an environmental sensing system with local characteristics through the integration of hardware and software. The community strives to promote open source and public welfare as the main axis, and to create customers instilled with a 'self-creator' spirit, develop low-cost environmental monitoring equipment with an open software and hardware architecture so that the public may build a set of sensing systems that meet their specific needs through a self-made process. At the same time, LASS also adopts and open attitude towards sensing data and allows volunteers to use environmental monitoring data uploaded to the cloud system by other partners in the community in order to build a real-time monitoring network.

合作單位 ➤

台北市文山社區大學（Wenshan Community College）、台北市大學里（Daxue Village, Taipei City.）、新北市鶯歌區建國里（Jianguo Village, Yingge District New Taipei City.）、台灣大哥大（Taiwan Mobile Co., Ltd）

CONTACT US ➤

<https://www.facebook.com/NTUIPCS>