HiPerGreen Newsletter

23rd March 2018 | Lucien Fesselet

Official HiPerGreen Half-Year Symposium

Friday 23rd Marched marked another special day in the HiPerGreen project calendar as the event was held at the newly opened World Horti Center in Naaldwijk. Participants in the form of students, professors and company representatives came together to share progress and ideas.

Overall Progress

The guests were greeted by the HiPerGreen management team upon arrival, before being directed to the coffee tables and reserved lunch tables. With a heavy number of students, this was the first opportunity for the various persons to get to know one another and discuss their involvement into the project.

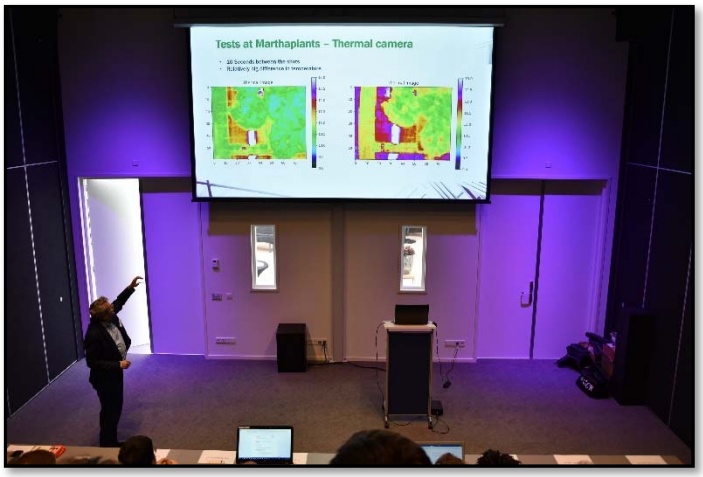
Once the lunch finished, guests took place in the auditorium. Cock Heemskerk, penholder of the HiPerGreen project and lector on Robotica at the Inholland University of Applied Sciences, opened the event with a welcoming speech. Lucien Fesselet followed with general updates on the project. As a follow-up on the feedback received during the kick-off, the approach on the project migrated from a cascade scheme to a circular scheme. This is illustrated with the project previously being divided in five work packages working sequentially but now the project is divided into seven project packages, all currently being tackled.

Another key news is the Project Cooperation Agreement. Following the rules of SIA-RAAK MKB, an agreement is needed in order to protect the IP of all participating entities. As the document is being finalised, the event was an opportunity to share the intentions.

Lucien ended the presentation with the introduction of three new partners into HiPerGreen: Aruku, specialists in Artificial Intelligence and deep learning; DB2-Vision, manufacturer of dedicated spectral cameras; Acal-bfi, European leader in advanced technology solutions.

Floor to the students

As most of the work is performed by students, the floor was given to them to present their results and progress. Lucien Fesselet, who has just finished his graduation project, was the first to present one of the three finished assignment results. Aimed at finding a localisation method for the drone inside the greenhouse, he was pleased to say end his presentation with a solution: by combining two methods, it was possible to produce a 3D location across the greenhouse. Cock followed to



present the results on a study on camera equipment, on behalf of Remo de Koning, who has also just finished his graduation project. The findings showed great potential in multi spectral imaging as well as in thermal imaging. Lastly, professor Pieter van der Hoeven presented on behalf of four graduating students from the Business, Finance and Law department the assignment on market research. The findings show great potential in business opportunity, with the Orchid market having the most potential with estimations in the order of 10 000 euros saved per year per hectare. Pieter emphasised in the need to continue researching into market development and suggests starting a pilot at a greenhouse.

The floor was then given to Jan-Willem van Doorn, graduate student, and Shaheer Mirza, 3rd year student, to present seven on-going projects done on drone development. The topics engaged were drone design, drone stabilisation, landing processes, localisation and obstacle avoidance, dynamic test platforms, battery swapping mechanism and drone locking mechanism.

A group of students from Alkmaar followed with their presentation. 3 students, representing a group of 9, described their project: a docking station. Their project differs from the rest in the sense that they are doing their assignment in the context of their school curriculum. Their assignment consists of designing, prototyping and validating a docking station where the drone will be able to land, have its battery swapped and take off again in an fully autonomous manner. The students presented their final design and are about to get a critical design review, in which the Go / No Go for manufacturing is at stake.

After a coffee break, the topics moved to greenhouses. Cock talked on the challenges tackled for climate monitoring based on the work performed graduate student from Alkmaar Wouter de Jong, explaining the importance of sensor selection and how to overcome certain behaviour. A good example was used with temperature sensors which have a relatively slow response time. By using clever technics, it is possible to deduce acute differences without having absolute values.

Students from the Agri, Food & Life Sciences department presented their curriculum-based project: studying Uniformity and various levels of growth inhibitors in plants. These assignments where given by participating greenhouse in the HiPerGreen consortium and are aimed at building reference data for HiPerGreen. Tests are carried at Deliflor and at the Demokwekerij. The data collected is to be made available for research across all participants.

The floor was then given to Amora Amir, a potential PhD researcher on big data. She gave a wonderful and insightful opening speech on the usefulness and the need to understand big amounts of data. There are so many possibilities to draw conclusive and useful meanings when data analysis is performed.

Audience Involved

The audience then moved to one of the open spaces the WHC offers for a demo flight. Lucien explained the inner working of the currently used drone and cleared any questions from the audience, ranging from drone capabilities to the drone's influence in the greenhouse. A flight was then performed for demonstration of capabilities and behaviour.

A risk analysis was then performed by the audience. Divided into small groups of 4 to 5, the audience had a chance to voice themselves by grouping their thoughts into three categories: Green representing what is going well in the project; Yellow representing the topics that need attention; and Red representing the points that needed immediate attention. The groups then presented their findings to everyone to make their points clear and to give a chance to the management team to understand and record all feedback. The event finished on a high note with a 'borrel', and a final chance for all guests to further mingle and discuss the topics of the day.