School of Electronics and Communication Engineering

Report on study visit to IIHR

About IIHR

The Indian Institute of Horticultural Research (IIHR) is an autonomous organization acting as a nodal agency for basic, strategic, anticipatory and applied research on various aspects of horticulture such as fruits, vegetable, ornamental, medicinal and aromatic plants and mushrooms in India. The institute has its headquarters in Hesaraghatta, Bengaluru, Karnataka, India and is a subsidiary of Indian Council of Agricultural Research (ICAR), New Delhi, under the Ministry of Agriculture, India.

Objective

A study visit was carried out on **20th April, 2016** by Prof.Bharath H P, Prof. Anupama R with a group of four students from 4th semester. The main objective behind the visit was to get technical information from the scientists of IIHR about present agriculture challenges the framers are facing in the fields. And to gather information about the Internships, Field Visit & MOU process with the institution.

Activity List

Sl.No	Time	Activity	Outcome
1	10:45 AM	Reached IIRH Campus.	
2	11:00 AM	Met Dr.T. ManjunathRao (Principal Scientist)	• Information regarding the formalities for Internships and field visits. • Guided us to concerned authorities to fulfil our objective.
3	11:15 AM	Interaction with Dr.Senthil Kumar (Head of Agriculture Engineering)	• Explained about the practical challenges in agriculture. • Introduced few existing projects and their importance. • Explained few problem statements and gave innovative solutions. • Explained about the practical scenarios, which the project should withstand in agricultural fields • Discussed about the importance of women friendly technologies.
4	12:30 PM	Lunch at IIHR Canteen.	
5	01:30PM	Interaction with Dr. M.S.Rao Principal Scientist-Entomology	• Insight about Menace caused by Insects and use of Bio-Pesticides. • Importance of Bio-fertilizers and Bio- pesticides
6	2:30 PM	Interaction with Dr.V.Sridhar Principal Scientist-Entomology	• Explained about the impact of climatic changes on pests and insects • He also discussed about how pests become immune to pesticides over a period of time due to detoxifying enzymes

7	3:15 PM	Dr.Raghupathy Principal Scientist- Soil Science and Agricultural Chemistry	• He discussed about how a crop should be chosen based on the soil's nutrients • He asked about the soil sensors and hyper spectral sensor and how can they assist farmers in diagnosing soil

Existing Solutions discussed

During the visit faculties and students interacted with different department's scientists to gather valuable information.Dr. Senthil Kumar showed videos of several existing machineries and briefed about the working procedure of them. He also discussed about the challenges faced at the testing stage of these machineries in field. Following is the list of such examples discussed,

1. Paddy Transplanting Machine
2. Weeds cutter machine
3. Winnowing machine

Problems identified during the interaction with different department scientists of the IIHR:

1. **Seed Sowing Machine:** Automatic seed sowing machine which sows seeds after predefined equal intervals**.**
2. **Intelligent Pesticide Sprayer**: A pesticide sprayer which can detect the plant of interestusing image processing algorithmsand sprays only on the necessary area. Thus, avoiding the wastage of pesticide and also protecting the soil fertility.
3. **Grading System**: Automatic segregation of fruits and vegetables depending on quality grades, using color sensing technology.
4. **Disease Detector for plants**: Using image processing techniques, A developed application should be able diagnose the disease and provide necessary information regarding solution from the database.

5. **Quality assessment of the metal pipes** used for green houses: An instrument which can estimate the thickness of the materials used for green house.
6. **Selection of machinery:** An+ application which can assist farmer to make a decision on the selection of machinery, Based on the specifications like crop, measurement of area, quantity of yield.
7. **Estimation of soil deficiency:** A portable meter which can do qualitative analysis of soil, on the parameters likemoisture, pH, nutrients etc.