HOT RESEARCH TOPICS IN VIETNAM

Dr. Bui Huu Phu – Vice Director;   Email: huuphu@iami.vast.vn

Institute of Applied Mechanics and Informatics (IAMI)

Vietnam Academy of Science and Technology (VAST)

GENERAL INTRODUCTION

- Vietnam is located in Southeast Asia

- It takes 3h30 from Taipei to HCMC

- Population is about 90 million, mostly live in big cities such as HCMC, Hanoi, …

- Government want to apply high technologies to solve many problems in Vietnam

GENERAL INTRODUCTION

Organization of VAST :

- Vietnam Academy of Science and Technology has 51 subordinate Units, including:

  • 33 research Institutes (27 Institutes established by Government and 06 Institutes established by VAST President)

  • 06 Administrative Units

  • 07 Other Units

  • 04 Self-financing Units

  • 01 State Enterprise

- **Human Resources: about 5000 staffs members, whereas more than 1000 Doctors**

- Including following research fields:
  - Information technology, Electronics, Automation and Space technology;
  - Biotechnology;
  - Materials Science;
  - Biodiversity and biological active substances;
  - Earth Sciences;
  - Environment and Energy;
  - Marine science and Technology.

DIRECTORATE — **Scientific Councils**

ADMINISTRATIVE UNITS

Department of Organization and Personnel
Department of Planning and Finance
Department of Application & Development of Technology
Department of International Cooperation
Department of Inspection
Administration Office
(Representative Office in Ho Chi Minh City)

OTHER UNITS

Graduate University of Science and Technology
Institute for Scientific Information
Publishing House for Natural Science and Technology
Vietnam National Museum of Nature
Center for Informatics and Computing
Center for High technology Development
Branch: Tay Bac Center for Technology Development
Branch: Center for Environmental Technology Application and Development
Center for Training, Consult and Technology Transfer

SELF-FINANINCING UNITS

Institute of Telecommunication Technology
Center for Technology and Technique Development
Scientific Production Union of Telecommunications - Informatics Hi-Tech
Scientific Production Union of New Technology

STATE ENTERPRISE

Newtatco Company Limited

RESEARCH UNITS

Institute of Mathematics
Institute of Mechanics
Institute of Information Technology
Institute of Mechanics and Applied Informatics
Institute of Physics
Hochiminh city Institute of Physics
Institute of Applied Physics and Scientific Instruments
Institute of Materials Science
Institute of Applied Materials Science
Institute of Tropical Technology
Space Technology Institute
Vietnam National Satellite Center
Branch: Southern Centre for Space Technology Application
Institute of Energy Science
Institute of Environmental Technology
Branch: Ho Chi Minh City Center for Environmental Technology
Branch: Da Nang Center for Environmental Technology
Institute of Chemistry
Institute of Natural Products Chemistry
Institute of Marine Bio-Chemistry
Institute of Chemical Technology
Institute of Biotechnology
Institute of Ecology and Biological Resources
Southern Institute of Ecology
Institute of Tropical Biology
Institute of Genome Research
Institute of Geography
Institute of Geological sciences
Institute of Geophysics
Institute of Marine Geology and Geophysics
Institute of Oceanography
Institute of Marine Environment and Resources
Hochiminh city Institute of Resources Geography
Nha Trang Institute of Technology Research and Application
Tay Nguyen Institute of Scientific Research
Mien Trung Institute for Scientific Research
Branch: Quang Tri Center for Scientific Research

■ Units established by Government
■ Units established by VAST President

IAMI introduction :

- A government Institute belonged to VAST

- Focus on the basic and applied research in the fields of mechanical engineering, automation, and information technology

- Cooperate and collaborate with domestic and international research organizations / companies to do research and implement projects for government and industry

Hot Topics in HCMC :

- Research and implement technologies to reduce traffic jams and flooding mitigation

Traffic Jam is a serious problem in Vietnam, especially in Hochiminh and Hanoi

Flooding after heavy rains is also a serious problem
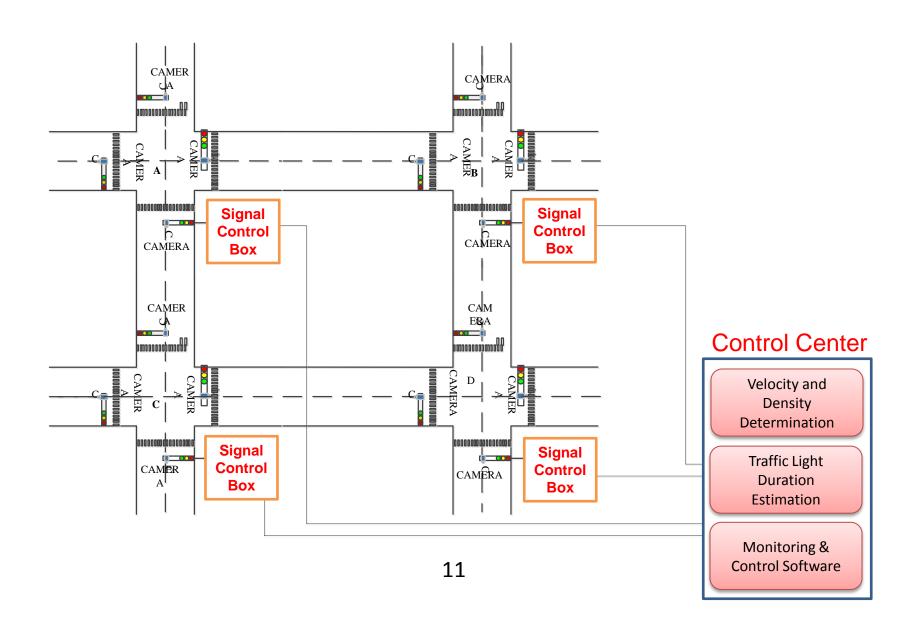In big cities in Vietnam

Solutions to solve the problems in HCMC :

1. Research and implement an intelligent traffic signal monitoring and controlling center

2. Implement Electronic Toll Collection (ETC) systems, softly replace for current MTC systems

3. Using satellite data and big data processing center to estimate rain water flooding levels in the streets in order to inform people to find other streets to go, and turn on pump systems to withdraw the flooding water

1. The Motivation of the Research

- Traffic jam in Vietnam causes serious problems on economics and society.

- Some domestic solutions have been applied but not high efficiency yet.

- Current traffic systems are controlled manually.

- Some international solutions were tested but not successful because of the difference of vehicles.

The goal of our research:

❖ Research and implemence of an intelligent transportation pilot system suitable for Vietnam situation.

❖ In the system, traffic signals are controlled adaptively and remotely based on density of vehicles in the streets.

Hot Topics in Vietnam :

- Research and implement technologies to reduce environmental pollution

- Research and implement technologies into high-tech agriculture

Solutions:

1. Research and implement solutions and technologies to collect big data of air, waste water, and underground water in the areas to monitor the quality, and warn if over the limit factors

2. Research and implement technologies into high-tech agriculture: including developing the automatic watering systems, deploying centers processing big data collected from green/glass-houses

MAIN CHALLENGES

- Hochiminh/Vietnam has not found suitable solutions and technologies to solve/apply

- IAMI is one of the active research and implementation organizations in Vietnam to submit proposals/projects to HCMC and Government to solve the problems

- IAMI wants to cooperate and collaborate partners to do research and implement the project together

Welcome to Vietnam !
Cooperate to develop together !