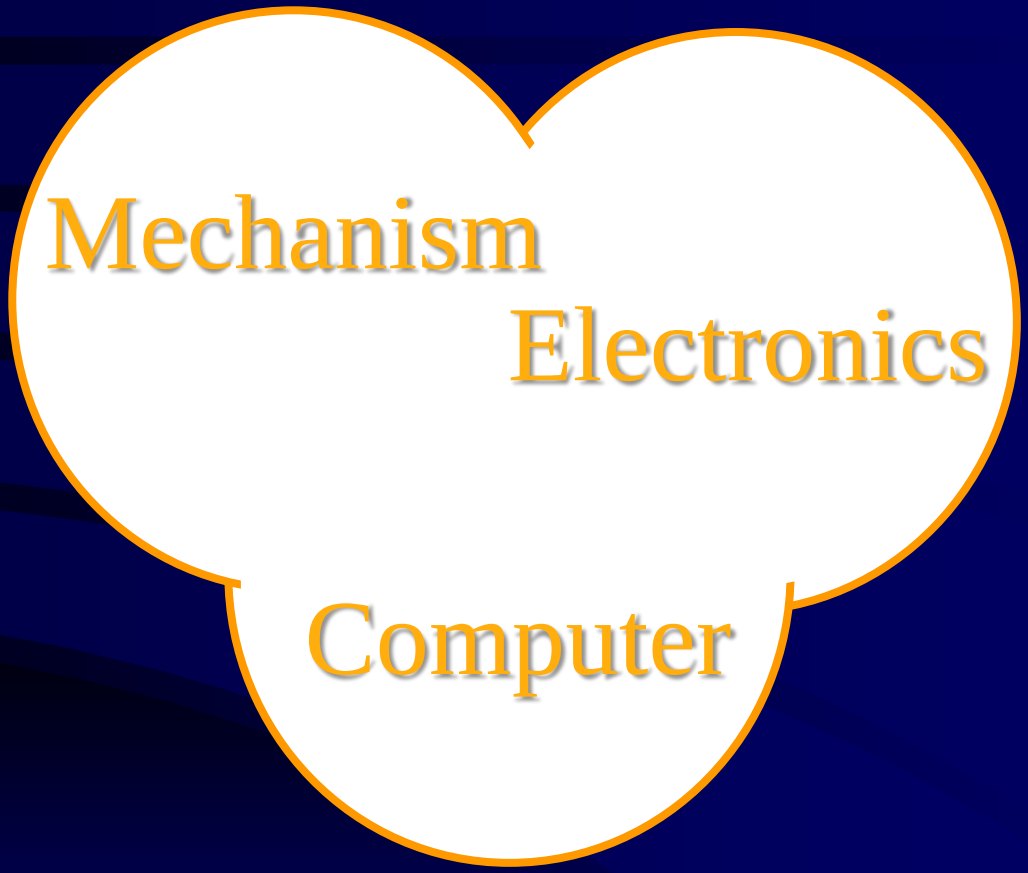
AIT TECHNOLOGY EVENT

Robots and Machines Development: from Imagination to Implementation

Manukid Parnichkun
Mechatronics
Asian Institute of Technology
manukid@ait.ac.th

Common Architecture of Robots/Machines/Human

Mechatronics Engineering



Which robot/machine should be made?

- Customer's Requirements
  - Made to order robot/machine
  - Requirements defined in specifications/term of references (TOR)
- Market Survey
  - Existing products
  - Potential products
- Dream and Imagination

Some Projects at AIT

- Flying Robot Project
- Underwater Robot Project
- Medical Tele-Analyzer Project
- Intelligent Vehicle Project
- Gyroscopic Unmanned Bicycle Project
- Exoskeleton Project
- Inverted Pendulum Project

Flying Robot Project

Objective: To develop an autonomous flying robot which can fly following a trajectory automatically by using computer onboard. No operator is required.

Applications of Autonomous Flying Robot

- Agricultural Purposes
  - Pesticide Spraying
  - Fertilization Spraying
- Natural Resources Exploration
  - Water Resources
  - Forest
- Security Purposes
  - General Patrol
  - Military Usage

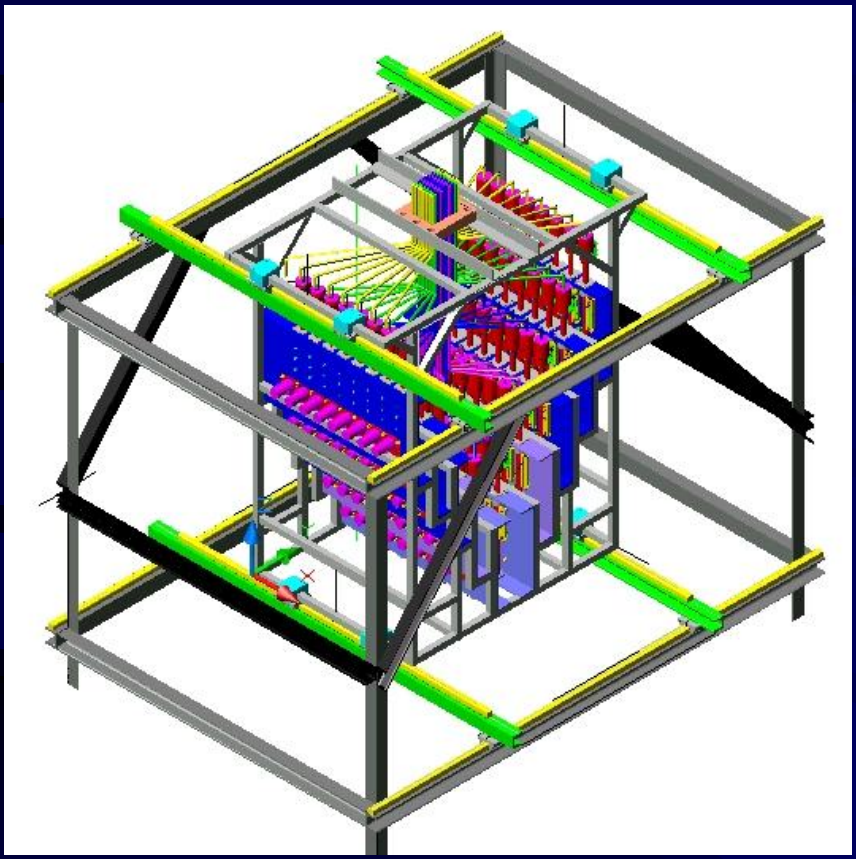
Video

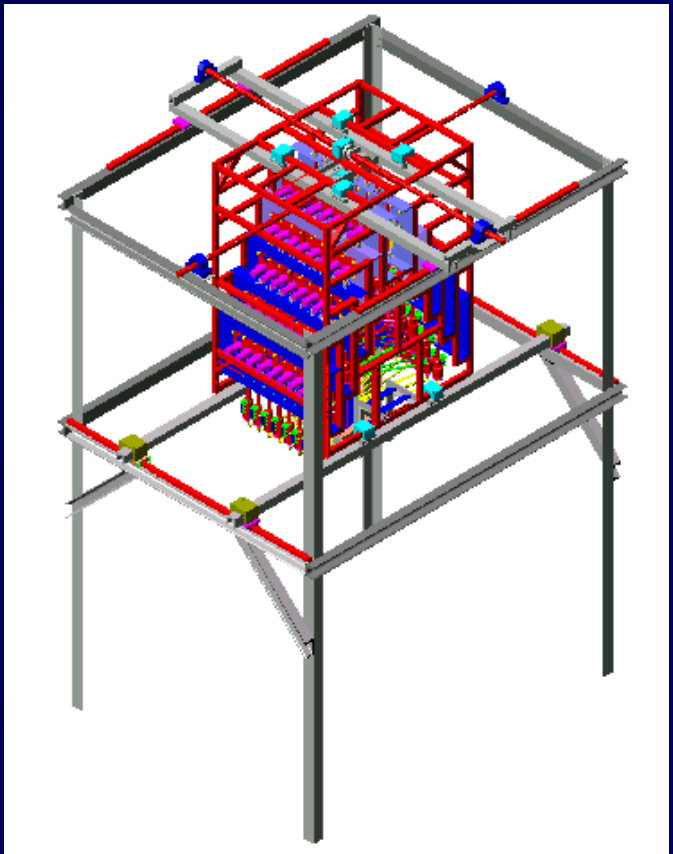
Underwater Robot Project

Objective: To develop an autonomous underwater robot which can move following a trajectory automatically by using computer onboard.
No operator is required.

Heading & Depth Control Video

Medical Tele-Analyzer Project





Objective: To develop a medical tele-analyzer used to diagnose abdominal mass remotely.

Applications

- Used to diagnose abdominal mass remotely
  - Hepatomegaly
  - Splenomegaly
  - Tumors at Breast, Ovary, Uterus, Colon

Video

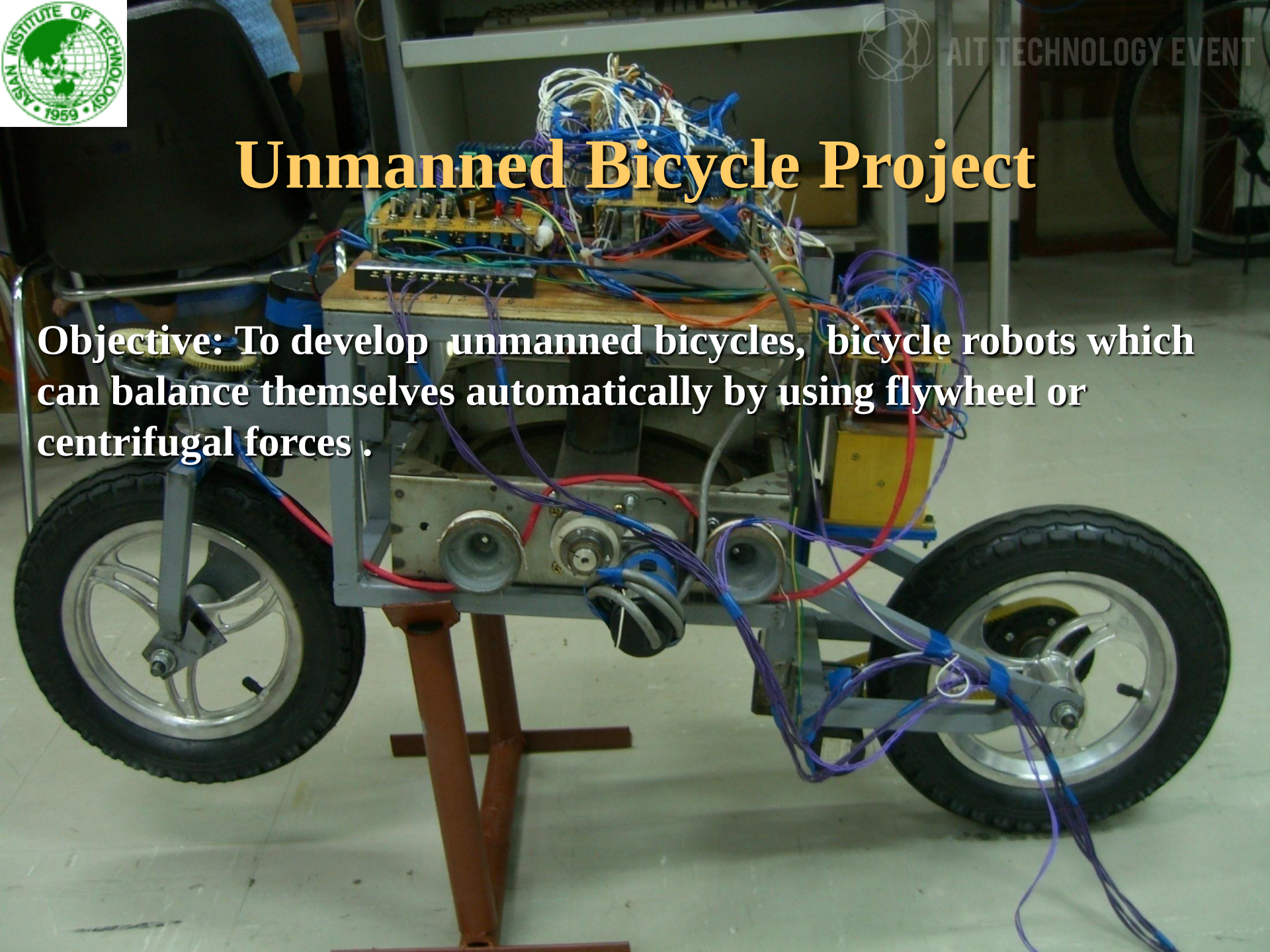
Intelligent Vehicle Project

Objective: To develop an Intelligent vehicle, the vehicle which can move autonomously from a place to the other place without driver by using information from GPS, digital map, camera, sonar, etc.

Adaptive Cruise Control Video

Thailand Intelligent Vehicle Challenge Video

Automatic Parking Video



Unmanned Bicycle Project

Objective: To develop unmanned bicycles, bicycle robots which can balance themselves automatically by using flywheel or centrifugal forces .

Video

Video

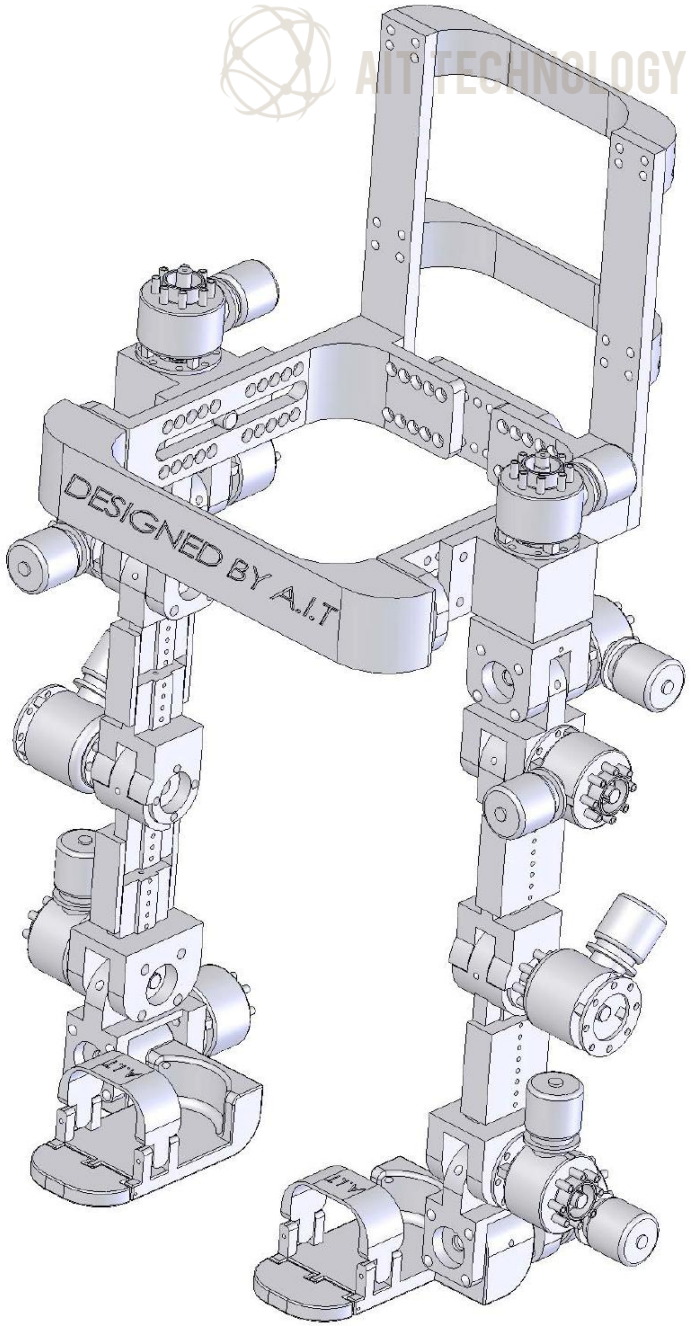
Video

Video

Video

Exoskeleton Project

Objective: To develop an exoskeleton for handicapped, paraplegia, hemiplegia people.



Floor Walking Video

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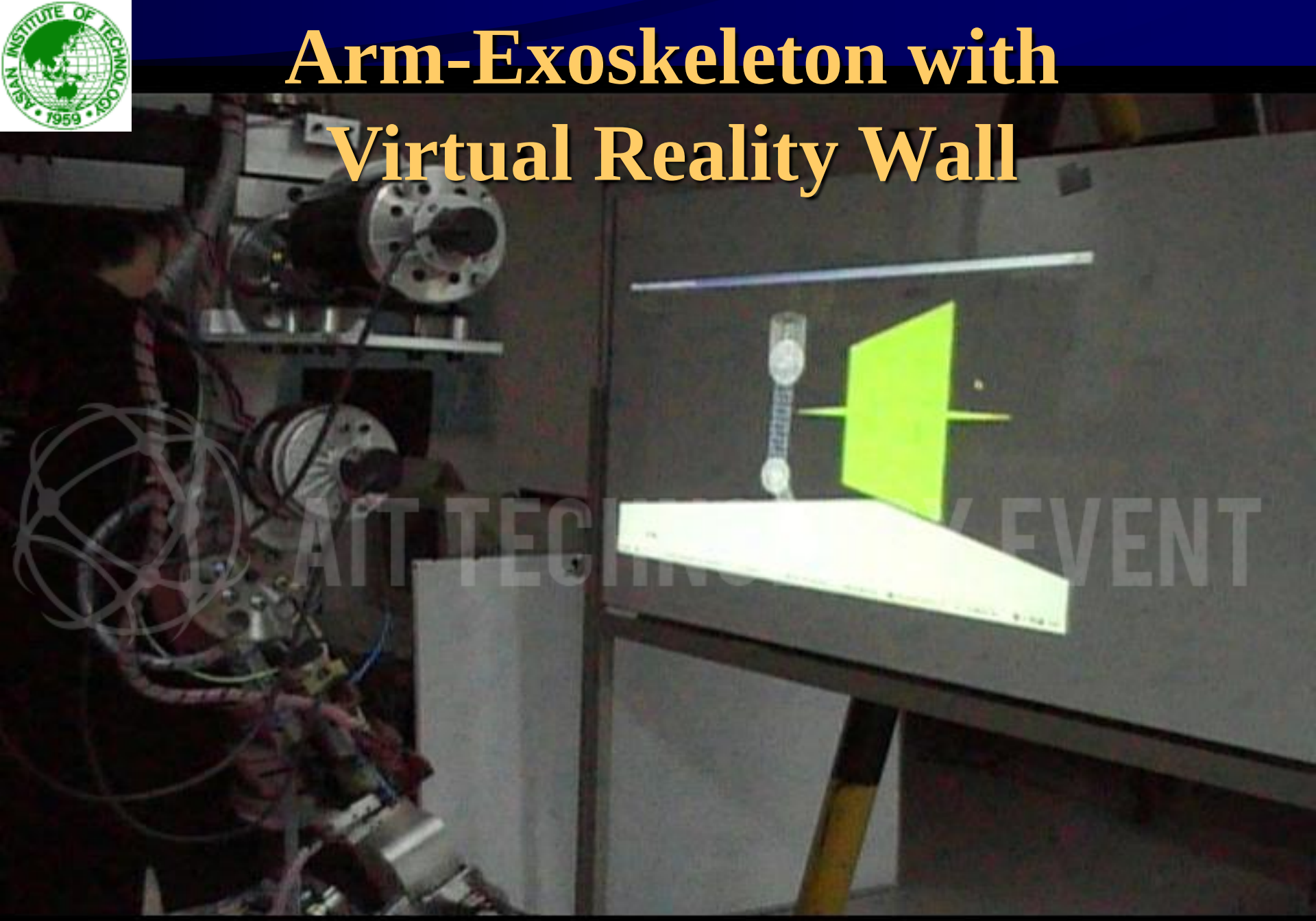
Leg Exoskeleton Video

Arm Exoskeleton Video

Leg-Exoskeleton for Rehabilitation

Leg-Exoskeleton

Arm-Exoskeleton with Virtual Reality Wall



Inverted Pendulum Project

Objective: To evaluate control performance of various control algorithm in balancing an inverted pendulum.

Video

Video

Video

Video

Thank you