



# **AN ACADEMIC EXCHANGE ON ROBOTICS AND INFORMATION TECHNOLOGY**

Oct 31<sup>st</sup> –Nov 4<sup>th</sup> 2018

# Contents:

## **Road to success in ABU Robocon**

- Achievements
- Vietnam Robot Contest
- Lac Hong University Robot Contest
- Training course, Workshop and Funding
- How to encourage students?

# Achievements

No.	Year	Domestic Contest	ABU Robocon	Team	Country
0	2005-2009	Participation			
1	2010	Grand Prix	The 1st Runner-up	LH-LED	Egypt
2	2011	Grand Prix	The 2nd Runner-up	LH-B7	Thailand
3	2012	Grand Prix	The 1st Runner-up	LH-CACTUS	HongKong
4	2013	Grand Prix	The 1st Runner-up	LH-SEE, LH-NVN-EAGLE	Vietnam
5	2014	Grand Prix	Grand Prix	LH-VNV	India
6	2015	The 2nd Runner-up			Indonesia
7	2016	Grand Prix		LH-FF	Thailand
8	2017	Grand Prix	Grand Prix	LH-NICESHOT	Japan
9	2018	Grand Prix	Grand Prix	LH-ATM, LH-GALAXY	Vietnam
Total	15 years	8	3		



LH-NVN



LH-NICESHOT



LH-GALAXY

# Introduction Vietnam Robot Contest

VIETNAM ROBOT CONTEST				
Round	Date	The South of Vietnam (HCM City)		The North of Vietnam (Ha Noi)
Preliminary	April 5th	6 Universities (Lac Hong University)		12 Universities
		23 Teams		57 Teams
Final	May 15th	8 Teams (Lac Hong University: 5/8 teams)		24 Teams
		8 Groups		
Representative team for Vietnam: LH-ATM and LH-GALAXY				

# Introduction Lac Hong University Robot Contest

LAC HONG ROBOT CONTEST (LHRC)						
Date	Sep 15th-Oct 15th	Oct 15th-Nov 15th	Jan 15th	Mar 24th	Apr 1st	Apr 8th
Round	Idea competition (Design on the computer)	Implementation competition (Making actual 4 legged robot, transporting Gerege and throwing Shagai mechanism...)	LHRC (Official competition)	Practice Contest #1	#2	#3
Purpose	Finding the best ideas	Finding the best mechanisms	Choosing 6 representative teams for Lac Hong	(Preperation for Preliminary)		
Teams	7	7	7	6		
Time	1 month	1 month	2 months	3 weeks		

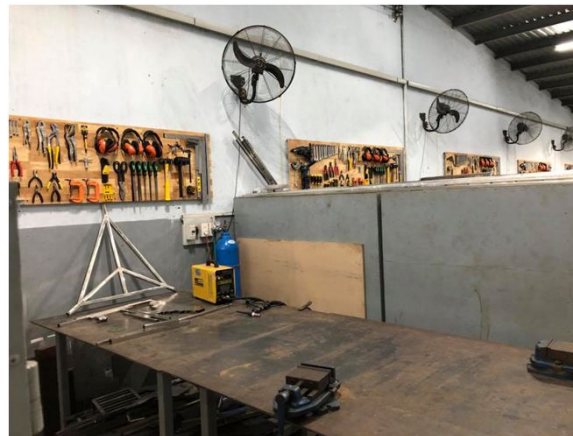


# Training course, Workshop and Funding

Training courses	Instructors	Workshop	Funding		
Basic use, Safety, 3S	6	Technical area for each team	Students (materials)	20%	5,000 USD 165,680 THB 120,000,000VND
Mechanic		Machines (drilling, welding, grinder, lathe)	University supplies motors, wheels, boards cylinders, valves, sensors	80%	
Electronics	Team members	Hand tools			
Programming	12	Game field			



Training course



Workshop



Game field

# Training course

## Team management:

- Instructor's responsibility
- Team leader, team member and pitcrew
- Financial management
- Groups: mechanic (6-8), electronics (2-4) and programming (1-2)
- Places: electronics and mechanic spare parts stores
- Update rule and FAQs
- Working time
- Discussion

# Training course

3S:



Draw line easy to know  
the place to put machine



Labels on each cleaning tools

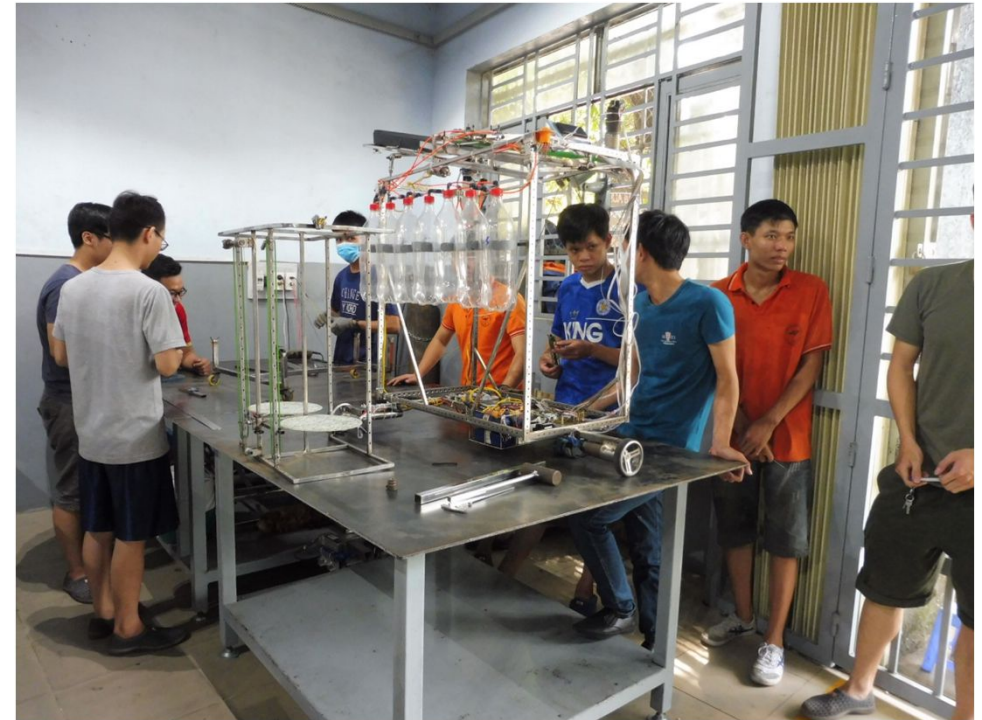


Display teacher and members in charge



# Training course

Safety:



# Training course

Safety:



Wear shoses, safety googles



Wear shoses, safety googles



# Training course

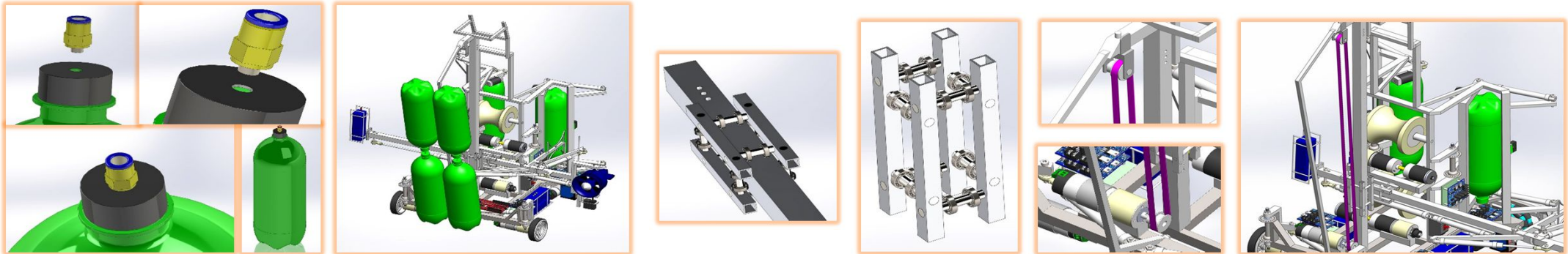
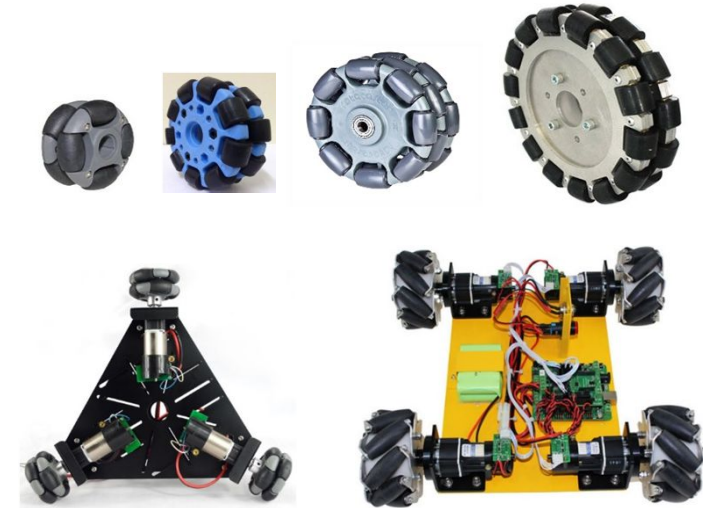
Basic use:



# Training course

## Mechanic:

- Moving system: wheels, motors...
- Actuators: sliding box, griper...
- Pneumatic system
- Material: stainless steel, aluminum, carbon



# Training course

## Electronics

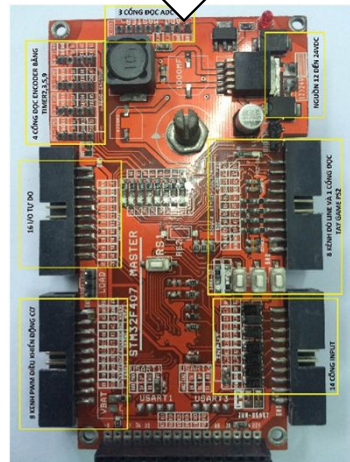
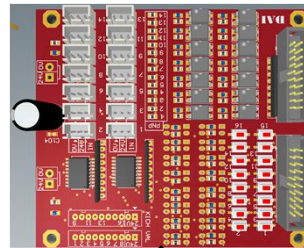
Sensor input and valves output control



Cylinder



Pneumatic valve



Main board



Laser



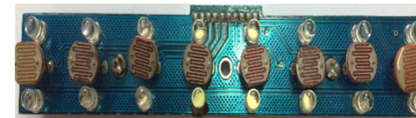
Camera



Encoder



Gamepad



Line sensor



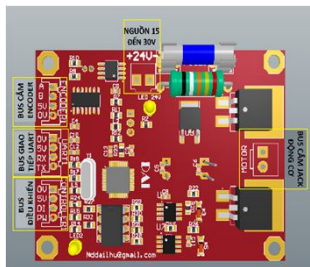
IMU



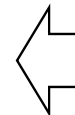
Battery



DC servo motor



Motor driver



Limited switch



Photo sensor



Magnetic sensor

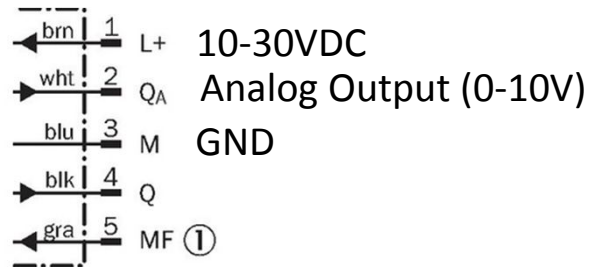
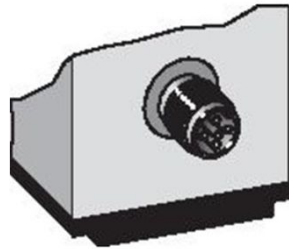
Output

(Input)



# Training course

## Electronics:



Laser sensor connection diagram



Pixy Camera



Encoder



Omni wheel



motor encoder for motor



# Workshop

- Open time: 24/7
- Fingerprint ID for entrance
- Security cameras (16)
- Financial penalty (\$5/time)



# How to encourage students?

- Amazing game show and technology competition
- Compulsory subject in the curriculum (Technology project)
- Final project for graduation (1 of 32 teams in Domestic final round)
- Easy to find a good job for a big company



# Questions and Answer!



**Thank you for listening!**