

UTILIZATION OF UAV IN MALAYSIA

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1. Current Situation of UAV Technology in Malaysia

1.A. Difficulties and problems:

- i. Regulation
- ii. Expertise
- iii. Cost
- iv. Weather/environmental/topographical condition
- v. Limitation of technology

1.B. Rules/Law of UAV in Malaysia

i. Flying/operation regulation

Weight/Type of UAVs	Conditions of flight	DCA Authorisation Required
Under < 20kgs:	<ul style="list-style-type: none">- Within visual line of sight; and- Satisfaction of safety by operator-	NO
Under <20kgs:	<ul style="list-style-type: none">- Not within visual line of sight; and/or- Without satisfaction of safety by operator-	YES
Under <20kgs but equipped for surveillance or data acquisition	<ul style="list-style-type: none">- Flown over a "designated area" or 150 metres of the same;- over any assembly in the open air of more than 1,000 persons or within 150 metres the same;- within 50 metres of any vessel, vehicle or structure which is not under the control of the person in charge of said UAV;- within 50 metres of any person; and/or- within 30 metres of any person during take-off or landing.-	YES
Above > 20kgs:	<ul style="list-style-type: none">- Any condition of flight-	YES
All UAVs (irrespective of weight)	<ul style="list-style-type: none">- airspaces classified as Class A,B,C and/or G;- in aerodromes traffic zones; and/or- above 400 feet of earth's surface-	YES

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ii. Frequency regulation

1.C. Requirements on UAV Technology Development:

- i. Knowledge
- ii. Techniques
- iii. Tools
- iv. Resource persons

1.D. UAV Projects

- i. **Agriculture:** Oil palm (tree counting, inventorying), Paddy field (crop spray, condition assessment), crop monitoring
- ii. **Construction:** Project monitoring, urban planning, transmission line
- iii. **Mining:** Quarry volume measurement, oil platform monitoring
- iv. **Surveying:** Topography, as-built, mapping
- v. **Natural Disaster:** Flood monitoring, SAR, Land slide monitoring, natural disaster management, coastal area monitoring
- vi. **Forestry:** Forest management, illegal encroachment/logging, species identification, wildlife monitoring
- vii. **Marine:** Coastal area monitoring, coral monitoring
- viii. **Law enforcement:** Illegal smuggling, coastal area monitoring
- ix. **Entertainment:** Advertisement

2. How to strengthen or enhance UAV Image Processing in your countries

- i. Training;
- ii. Availability of software and hardware;
and
- iii. Reducing the cost of the software and hardware

3. Potential/ Opportunity for UAV Projects in Malaysia

3. A. Expected project / possibility activities:

- i. Wind turbine monitoring
- ii. Infrastructure monitoring/assessment
- iii. Vegetation stress assessment (disease, water, nutrient using hyperspectral UAV)
- iv. Transmission line using LiDAR UAV
- v. High accuracy topographic mapping using LiDAR UAV
- vi. Forest species monitoring and classification using hyperspectral UAV
- vii. Advertisement/film making

3.B. Future Plan


- i. Increase expertise in:
 - ▶ Engineering and system development/integration
 - ▶ Data processing and analysis,
 - ▶ Application experts,
 - ▶ Enhanced UAV related syllabus and courses at university level
 - ▶ Provide technologies update and continuous training

- ii. Identification of research gaps for further research and development

4. Potential projects on regional collaboration

Expected project / possibility activities / Future plan:

- i. Joint projects in UAV development and applications
- ii. Exchange knowledge
- iii. Natural disaster management
- iv. Counter-terrorism
- v. Human trafficking
- vi. Illegal smuggling
- vii. Illegal fishing
- viii. Student and staff exchange



Thank You
Terima Kasih
Kob Kun Krub