

Institute for Vehicle System
Engineering (IVeSE)

FLAGSHIP PROJECT

**Advanced Disaster Relief
Utility Vehicle (ADRUV)**

INTRODUCTION

- IVeSE Project – Contribution from each CoE
- Project Title : Advanced Disaster Relief Utility Vehicle (ADRUV)
- Function : Especially for floods Search, Rescue and Medical
- Potential market : Asian countries

PROJECT TEAM

- Program Head : Prof. Ir. Dr. Ab Saman
 - Project Leader (MTC): Ir. Dr. Faizul Amri
 - Project Leader (ADC): Dr. Farid
 - Project Leader (CfC): Dr. Shukur
 - Project Leader (LOCARTIC): Dr. Srithar
- Supporting project:
 - RO : 1
 - Postgraduates : Masters = 4

PROJECT OUTPUTS

- Publication : 25 papers (Scopus indexed)
- Postgraduate students : 4
- Copyright : 4
- Industrial design : 8
- Book chapter : 8

Advanced Disaster Relief Utility Vehicle (ADRUV)

Vehicle Specifications:

- For floods search, rescue and medical
- Principal Dimension :
 - LOA = 6m
 - Breadth = 2m
 - Draft = 1m
 - Depth = 1.8m
- Passengers : 4-6
- Operator : 2
- Payload : up to 1 tonnes
- Gross weight of vehicle: 2 tonnes

COMPANY COLLABORATION

- Caterpillar – engine part
- Jabatan Pertahanan Awam (JPA) – design input/user
- Bomba – design input/user
- Local boat builder

MTC – Advanced Disaster Relief Utility Vehicle with Improved Drag Reduction Scheme

1st Phase

- Design concept
- Lines plan and general arrangement
- Scantling
- Model making
- Model testing

~~2nd Phase~~

- ~~■ Prototype construction and testing~~
- ~~■ Launching~~
- ~~■ Certification / approval~~

CfC - Polymer Composites and Green Technology Materials For ADRUV Structure

1st Phase

- Design Concept of ADRUV Body Structure Based on Advanced Composites Material Characteristics
- Advanced and Green Composites Materials Selection, Testing and Manufacturing Method for ADRUV Body Structure
- Design Analysis of Advanced/Green Composites Body Structure using FEA Method

2nd Phase

- ~~■ ADRUV body construction~~
- ~~■ ADRUV Composites Structural Testing Performance~~

LOCARTIC – Selection and Optimization of Propulsion System for ADRUV

1st Phase

- Power train specification for amphibious operation
- Modeling and performance analysis
- Exhaust energy recovery system design
- Drive train switching mechanism

~~2nd Phase~~

- ~~■ Engine retuning for fuel economic~~
- ~~■ Engine performance test~~

ADC – Design of Auxiliary System for ADRUV

1st Phase

- Auxiliary engine specification
- Cooling and ventilation system
- Modeling and performance analysis
- Auxiliary engine optimization based on bio-fuel
- Auxiliary Material selection
- Drive train switching mechanism

2nd Phase

- ~~Fabrication process~~
- ~~Auxiliary engine testing~~

BUDGET AND DURATION

| Vot | MTC | CfC | LOCARTIC | ADC |
|------------------|-------------------|---------|----------|---------|
| B11000 | 48,000 | 24,000 | 24,000 | 24,000 |
| B21000 | 27,000 | 11,000 | 15,000 | 11,000 |
| B26000/27000 | 50,000 | 50,000 | 60,000 | 50,000 |
| B29000 | 20,000 | 10,000 | 6,000 | 10,000 |
| B35000 | 10,000 | 20,000 | 10,000 | 20,000 |
| Sub-Total | 155,000 | 115,000 | 115,000 | 115,000 |
| TOTAL | RM 500,000 | | | |

Duration : 12 months

Corrections :

- Add details on budget
 - nama alat, justifikasi..
- Highlight difference with existing project
- Delete 2nd Phase