

An Indian-Australian research partnership

Project Title: **Accessibility solutions for healthcare emergencies for rural areas**

Project Number ID01059

Monash Main Supervisor

(Name, Email Id, Phone)

Dr Selby Coxon

Selby.coxon@monash.edu

Full name, Email

Monash Co-supervisor(s)

(Name, Email Id, Phone)

Monash Head of

Dept/Centre (Name,Email)

Prof. Lisa Grocott

Lisa.grocott@monash.edu

Monash Department:

Design

Monash ADGR

(Name,Email)

Prof. Arthur De Bono

Arthur.debono@monash.edu

Full name, email

IITB Main Supervisor

(Name, Email Id, Phone)

Dr. Sugandh Malhotra

sugandh@iitb.ac.in

Full name, Email

IITB Co-supervisor(s)

(Name, Email Id, Phone)

Dr. Vivek Kant

vivek.kant@iitb.ac.in

Full name, Email

IITB Head of Dept

(Name, Email, Phone)

Prof. Anirudha Joshi,

Head.idc@iitb.ac.in

Full name, email

IITB Department:

IDC

Research Clusters:

Research Themes:

Highlight which of the Academy's CLUSTERS this project will address? <i>(Please nominate JUST <u>one</u>. For more information, see www.iitbmonash.org)</i>		Highlight which of the Academy's Theme(s) this project will address? <i>(Feel free to nominate more than one. For more information, see www.iitbmonash.org)</i>	
1	Material Science/Engineering (including Nano, Metallurgy)	1	Artificial Intelligence and Advanced Computational Modelling
2	Energy, Green Chem, Chemistry, Catalysis, Reaction Eng	2	Circular Economy
3	Math, CFD, Modelling, Manufacturing	3	Clean Energy
4	CSE, IT, Optimisation, Data, Sensors, Systems, Signal Processing, Control	4	Health Sciences
5	Earth Sciences and Civil Engineering (Geo, Water, Climate)	5	Smart Materials
6	Bio, Stem Cells, Bio Chem, Pharma, Food	6	Sustainable Societies
7	Semi-Conductors, Optics, Photonics, Networks, Telecomm, Power Eng	7	Infrastructure
8	HSS, Design, Management		

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The research problem

Define the problem

The pertinent underlying factor in the design of mobility systems used for healthcare emergency situations remains unchanged to commute the patient from Point A to Point B from an emergency site to the hospital.

There are plenty of solutions available for a full scale Ambulance service for cities. A large and overwhelming number of devices are used inside the ambulance, on a stretcher or on a wheelchair. These devices provide preliminary medical attention, life support, first aid and many such facilities to the patient thereby making his transit more comfortable and convenient.

However for a remote area, reach and availability of a conventional ambulance is problematic. Non-existent road, minimal infrastructure support, system integration, expandability are some of the many issues that have to be dealt with.

This project targets design, prototype and testing of alternate accessibility solutions to transport patients from emergency situations in remote rural locations to a nearby healthcare centre. These solutions should be low-cost, efficient and support more effective mobility system.

Project aims

Define the aims of the project

Identify and push the boundaries of design knowledge to build an effective system that supports accessibility solutions that can be used in an emergency to provide better access to healthcare services for rural sector; build, deploy and test the system, demonstrate impact, and articulate lessons learnt.

What is expected of the student when at IITB and when at Monash?

Highlight how the project will gain from the students stay at IITB and at Monash

At IITB and Monash

- **Research:** system and product level thinking to realize potential solutions for an effective comprehensive solution for reaching and deploying high density city situations during an emergency
- **Create:** identify and build specifications for a compact, modular and scalable system
- **Simulate/Test:** testing through simulation; build mockup for simulated field testing and register actual users' feedbacks;

At IITB

- **Promoting Awareness:** Spreading awareness among the neighborhood communities to adopt better practices for ensuring quicker emergency response vehicle deployment

Expected outcomes

Highlight the expected outcomes of the project

It is the aspiration of this project that the outcomes will form a body of work outlining how a support system of public and private health services can benefit from a design methodology and what improved health and wellbeing outcomes could look like. Examples of such output may include:

- **Research:** system and product level thinking to realize potential solutions for an effective comprehensive solution for secured and comfortable patient delivery from emergency site to the nearby healthcare centre
- **Create:** adapting existing infrastructure and accessibility solutions to transform into mobile ambulance;
- **Simulate/Test:** build mockup for field testing and register actual users' feedbacks; testing through simulation
- **Maintenance:** empowering the indigenous communities to manage their mobile ambulance solutions
- **Promoting Awareness:** Promoting self-sufficiency in providing support for pregnancy, child care, hygiene, first aid related support services within a community

How will the project address the Goals of the above Themes?

Describe how the project will address the goals of one or more of the 6 Themes listed above.

Unicef is supporting a project on Mobike ambulance for some tribal regions. This may be explored (Ref: CTARA, IITB)

More sources are yet to be found

Capabilities and Degrees Required

List the ideal set of capabilities that a student should have for this project. Feel free to be as specific or as general as you like. These capabilities will be input into the online application form and students who opt for this project will be required to show that they can demonstrate these capabilities.

A background in Industrial Design, preferably a Masters or high level Bachelor degree in accordance with the eligibility regulations. The candidate's portfolio should demonstrate adequate rigor and inclination towards problem identification and solution finding through research.