# TAMILNADU STATE COUNCIL FOR SCIENCE AND TECHNOLOGY

## STUDENT PROJECT PROPOSAL

1. Name of the Student (s) :

| S.No | Name of the Student | E-Mail ID | Phone No. |
|---|---|---|---|
| 1 | R. Karthick pandiyan | Karthickkarthick8990@gmail.com | 8270176293 |
| 2 | S. Ayyanar | ayyanar6659@gmail.com | 9488572459 |
| 3 | M. Abdul Aziz | abdulazizmrk@gmail.com | 8667835035 |
| 4 | J.Jegan | jeganjeyakanthan003@gmail.com | 6381726617 |

2. Name of the Guide : Dr. Ayshathul Fouzia Abdul Gani

   Department / Designation : Electronics and Communication / AP (Sl.Gr.)

   Institutional Address : M.I.E.T ENGINEERING COLLEGE
   Trichy-Pudukkottai Road,Tiruchirapalli-620007

   Phone No. & Mobile No. : 97895 29294

3. Project Title : Air Ambulance

4. Sector in which your Project proposal is to be Considered. : Engineering Technology-Mechatronics

5. Project Details:

**a) INTRODUCTION:**

This project is going to be of great help to mankind. Due to road traffic congestion and air pollution, people's lives are not saved in time and the casualties are increasing. This includes car accident victims, elderly people who are in critical condition, and those who are in a life-threatening situation if they do not go to the hospital in time. The human body is a single system, but it is made up of billions of small structures of four main types: cells, tissues, organs, and systems. An organ is a set of different types of tissue that can work together to perform a special function. While an ambulance that transports people who may be in a critical or critical condition can take the person safely to the hospital, the ambulance takes some time to the human body while driving through a pothole on the road, which worsens the condition of the sick patient. It can even become dangerous, hence the possibility of loss of life is very high. It's going to be used a lot, so it has a high chance of survival. Thus it leads to the end of human life. It also depends on the type of device used. Coming generations In recent years humans have invented many different new life-saving devices and life-saving machines and installed them in life-saving vehicles like medical ambulances. These devices are simple and easy to operate. As technology improves every day, providing this capability is of prime importance. The main aspect that will make this vehicle more innovative and advanced in the future is through electronics and mechanics. Helium gas and drones are acceptable for any wearable application. Wearable helium balloons and drones have mainly been invented to easily fly from one place to another, they can be used in medical and big technology. Helium gas, Thermacol, drones can be used to propeller and fly short distances to save human lives due to their relatively medium-sized design, easy construction, significant gain and maneuverability. By using it in a variety of vehicles, it can prevent fatalities from road congestion, air pollution, vehicle collisions. The vehicle is capable of moving in the air, but is designed to move on land and water. A common process in mechanics is that single and multiple drones are

accompanied by a helium gas that helps them move in three directions on water, land, and air. This process can be better designed and implemented. In this way the engine can be improved and both electronics and mechanics can be combined to create a new vehicle that can be used to save human life. Its goal is to make air ambulance connectivity history, a manifestation of the need for vehicles that are now ubiquitous in everyday life. So previous studies have proven that flying cars can fly for a certain amount of time and at a certain height. Under certain conditions, exposure to drones and helium gas exposure are thought to be associated with intrusions, memory and learning dysfunction, and solar plaque. One of the main problems involved is predicting wind direction. The main objective of the project is to create accurate and reliable output through IOT technology and embedded system and save lives using a mobile vehicle with all the good and auxiliary features to save lives.

## b) OBJECTIVE:

As new and advanced ideas are applied in biomedical applications, this project can be well used in biomedical field. IoT and embedded system based functionality is based on great assistance to humans using this vehicle. As the number of elderly people in our country is increasing, sudden cancer attack can lead to many more diseases. Due to the old age of the people in our country we are prone to many diseases and it is based on our great help to our people. In cases of illness, immediate access to hospital can prevent them from being on the brink of death. Due to the increasing number of vehicles on the road and poor road maintenance, timely access to hospital is a major challenge in our country. It makes it difficult for them to face a regular lifestyle like others. By using IoT technology as a solution to such situations, we can reach the hospital quickly and help the patient, and our country can progress beyond the current development, both mentally and physically. Normal ambulance road congestion and any reason that life may be lost can help save that life when we go by air and water to prevent it. A helium gas buoyancy balloon is added to the bottom of this vehicle, so this vehicle is able to float in water and can easily go to its destination even in water. This program helps with many additional problems like this. This provides an advantage to the project as it can be easily rushed to the victims of any building fire or submersion and implements the plan without the need for life support. This project based on IOT and embedded system can produce a mass utility vehicle. This scheme will ensure medical benefit. Promotes a good and satisfactory use of the domain and general public health care and society.

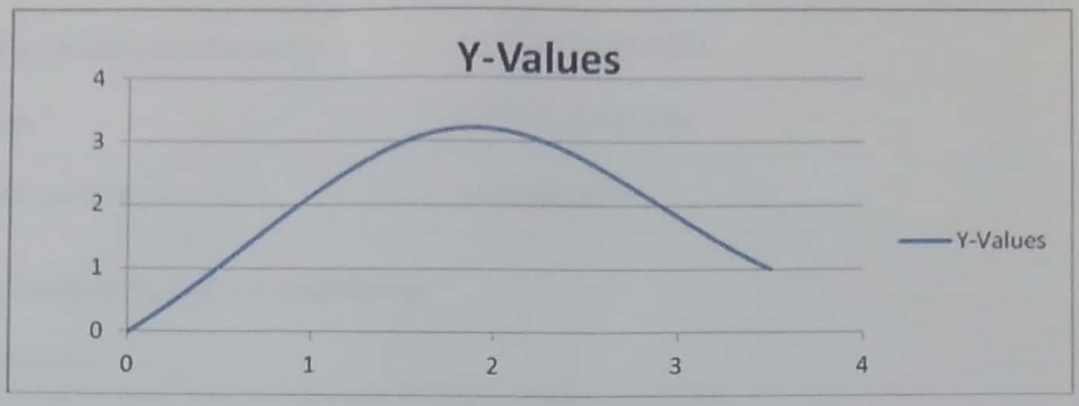
## c) METHODOLOGY:

When this vehicle goes on the road, it runs on the road like a normal vehicle, and when the road is jammed, the rod installed in this vehicle in all four directions will lift the vehicle, and when it is lifted, the direction of the four wheels will change. Helium gas installed on all sides of the vehicle reduces the weight of the vehicle. When reduced in such a way that the vehicle can easily fly up to a certain distance. Where flight is not possible, the vehicle will also go on water. A helium gas balloon attached to the bottom of the vehicle makes the vehicle buoyant when the vehicle is submerged for a certain distance. When the front wheel of the vehicle rises up to 20 degrees and the rear wheel rises up to 30 degrees, it reaches the destination easily with the help of a boat mounted on the wheel of the vehicle. A machine can easily save lives.

### Description of Air ambulance

Calculate the Thrust Force on Drones:

I ran the Tracker software on this clip and adjusted the listed frame rate until the fitting equation gives me a vertical acceleration of $-9.81\ m/s^2$. After playing around a bit, I got a time interval of 4.28 milliseconds—so actually about 234 frames per second. Here is the trajectory with the adjusted frame rate:




**Formula:**

$$Y=Y_0 + v_0t + 1/2at^2$$

Model Image (Ambulance):

**Helium gas:**

- Because of its low density helium is often used to fill decorative balloons, weather balloons and airships. Hydrogen was once used to fill balloons but it is dangerously reactive.

- Because it is very unreactive, helium is used to provide an inert protective atmosphere for making fiber optics and semiconductors, and for arc welding. Helium is also used to detect leaks, such as in car air-conditioning systems, and because it diffuses quickly it is used to inflate car airbags after impact.

- A mixture of 80% helium and 20% oxygen is used as an artificial atmosphere for deep-sea divers and others working under pressurized conditions.

**Physical Properties of Helium**

| **Helium (He)** | **Physical Properties** |
|---|---|
| Melting Point | 0.95 K (or -272.2°C) |
| Boiling Point | 4.222 K (or -268.928°C) |
| Density | 0.1786 g/L at STP; 0.145 $g.cm^{-3}$ at its melting point |

| | |
|---|---|
| Critical Temperature and Pressure | 5.195 K; 0.227 MPa |
| Triple Point | 2.177 K; 5.043 kPa |
| Appearance (at STP) | Colourless gas |

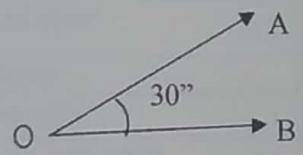
**Working Methodology of Air ambulance:**

**Lifting process:**

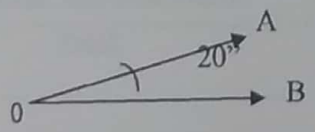
- The Ambulance will run upwards from the specified location.
- The ambulance is equipped with iron rod in all four directions. The rod holds the four iron rod so that the tire of the ambulance does not change position or the bone ambulance does not stumble.
- When the fixed wheel of the ambulance is changed position, the rods hold the ambulance without stumbling and then the propeller on the wheel rotates the ambulance with the help of helium gas and the ambulance moves upwards.
- It rises up to a certain height.

**Cruise process:**

- A helium gas balloon attached to the bottom of the ambulance keeps the ambulance buoyant when submerged in water.




- The rear wheel mounted on the ambulance is raised by 30° and the ambulance is driven backwards.




- Ambulance has a 20 degree bank on the front wheel.
- Thus changing the position leads to the destination and reaches the destination.

**Alternate Working Methodology of Air ambulance:**

- This ambulance can drive on the road like normal vehicles in normal time and then the ambulance can be changed into two modes like running on water and in the sky.
- Water---Ambulance can move with the help of helium gas air bags. The side vents are filled with helium gas. An ambulance reaches the distance
- Air--- Ambulance will fly when emergency like traffic occurs. The ambulance wheel Can Convert to drone type & popup wings. Fly with help the destination easily .This drone wings & helium Cross.

d) **Work Plan:**


e) **Budget:**

Material Cost:

| S.NO | DESCRIPTION | QTY | MATERIAL | AMOUNT(RS) |
|---|---|---|---|---|
| 1 | Aluminium sheet( side 4\9) ( Top 3\9) | 6 | Aluminium | 15,000 |
| 2 | Thermocol sheet | 35 | Thermocol | 1,000 |
| 3 | Drone Motor | 4 | Steel | 12,000 |
| 4 | Drone propeller | 4 | Fiber | 20,000 |
| 5 | Helium gas (cylinder) | 1 | Gas | 2,000 |
| 6 | Air bags (side 3\8) Top (2\9) | 4 | Rubber (PVC) | 6,000 |
| 7 | Normal mid range vechicle | 1 | Iron | 30,000 |
| 8 | Other material and component | ----- | All | 14,000 |
| Total | | | | 1,00,000 |

TOTAL COST OF THIS PROJECT = RS. 1,00,000.00

f)Any Other Details:

Initially, the prototype of the vehicle is to be designed and fabricated for testing purposes with less cost. The amount sanctioned by the TNSCST of Rs. 10,000 will help to use for the fabricating cost of the prototype and the balance will be borne by the Institution.

6. Has a similar project been carried out in your college / elsewhere? If so furnish details of the previous project and highlight the improvements suggested in the present one : NO

## CERTIFICATE

This is to certify that Mr.R.Karthickpandiyan/M.Abdul Aziz/S.Ayyanar/J.Jegan are a bonafide final year students of U.G. Engineering courses of our college and it is also certified that two copies of utilization certificate and final report along with seminar paper will be sent to the Council after completion of the project by the end of May 2023.

30/AUG/2022
Signature of the Guide

30/8/22
Signature of the HOD

30/8/22
Signature of the Principal/
Head of the Institution
(with seal)

PRINCIPAL
M.I.E.T. ENGINEERING COLLEGE
GUNDUR, TIRUCHIRAPALLI - 620 007.