**JUSTIFICATION FOR COMPONENTS**

**Structural components:**

The upcoming list of components is used for building the structure of the rescue bot.

PVC pipes:

The PVC pipes are used for ensuring the buoyancy of the rescue bot on the surface of the water.

**Electronic components:**

The electronic components are used for the better functionality and control of the rescue bot. The list is as follows

Nodemcu

Nodemcu is open source IOT stage. It incorporates firmware which keeps running on the ESP8266 which is a solitary board microcontroller. The memory and capacity includes 128k bytes and 4M bytes. It has incorporated help for WI-FI organize. This controller controls our bot with transmitting and receiving the signals

DHT11 Sensor

The computerized temperature and moistness sensor DHT11 is a composite sensor that contains an adjusted advanced sign yield of temperature and stickiness. The innovation of a committed computerized modules accumulation and the temperature with mugginess detecting innovation are connected to guarantee that the item has high unwavering quality and great long haul dependability. . The temperature and humidity of the enclosure can be visualized with the help of this sensor

Accelerometer Sensor

It measures the proper acceleration. Accelerometers are components of inertial navigation systems for aircraft. It is used to measure and monitor vibration in rotating machinery. In our system the sensor used to measure the speed of the bot and it will update in the APP on every day.

GPS Module

GPS is a gadget that is equipped for getting data from GPS satellites and afterward to compute the gadget's geological position. It can recover from the GPS framework area and time data in every single climate condition, anyplace on or close to the Earth. The location of the person as well as the bot is visualized by this GPS module.

FPV Goggles

FPV Goggles is a redesign from FPV screen incorporated with the remote controller. It is outfitted with a head following innovation which feed FPV camera with direction of head .It works with the assistance of FPV camera, video transmitter(VTX), video receiver(VRX) and receiving wires which all work together to convey live feed directly before the eyes in googles.

FPV Camera

First individual view (FPV) camera is simple camera which has low dormancy yet equipped for giving powerful extend in denser zone. It gives a reasonable picture. While utilizing FPV Google, FPV Camera moves with the direction of the head. Since it point towards the heading of the goggles are confronting.

Li-ion battery

Lithium ion battery (14.8V, 18Ah) is a high capacity custom battery pack made from high quality 18650 li-ion cells. This 4S (14.8V) battery has a nominal capacity of 18.0 Ah, withstand up to 4 hours of continuous working. It has high tolerance for accidental mishandling.

Thrusters

T200 is basically a brushless electric motor. It is made of High strength, UV resistant polycarbonate injection modelled plastic. The core of the motor is sealed and protected with an epoxy coating and it uses high performance bearings. The specially designed propeller and nozzles provides efficient, powerful thrust while active water-cooling helps to cool the motor. In the thrusters water flows freely through all the parts of the motor.

Electronic Speed Controller:

The Electronic Speed Controller is used to control the speed of the thrusters used. The selection of imported blue robotics thrusters is because of its reversible feature. It can run a motor both clockwise and anti – clockwise due to which it differs from other ESCs. Quality is one of the pivotal parameter considered for the selection of the Blue Robotics ESC.

RC 6 channel Transmitter and Receiver

A remote control 6 channel transmitter and receivers an electronic gadget used to work the gadget from a separation, normally remotely. It is essentially a comfort highlight for the client, and can permit activity of gadgets that are out of advantageous reach for direct activity of controls. At times, remote controls enable an individual to work a gadget that they generally would not have the option to reach.