Top of Form

Institution Details

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| **Province** | Sindh | **City** | Karachi |
| **Institution** | Iqra University | **Campus** | Main |
| **Department** | Software Engineering | **Degree Level** | BS |
| **Degree Program** | Software Engineering | **Telephone** |  |
| **Fax** |  |  |  |

Supervisor Details

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| --- | --- | --- | --- |
| **Name** | ENGR. DR. MANSOOR EBRAHIM | **Gender** | Male |
| **Mobile** | 03312543160 | **Office No** | 021111264264 |
| **Email** | mebrahim@iqra.edu.pk | **Designation** | Assistant Professor |
| **Qualification** | Phd |  |  |

Co-Supervisor Details

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** |  | **Gender** | Select Gender |
| **Mobile** |  | **Office No** |  |
| **Email** |  | **Designation** | Select Designation |
| **Qualification** | Select Qualification |  |  |

Head of Department Details

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| --- | --- | --- | --- |
| **Name** | ENGR. DR. MANSOOR EBRAHIM | **Mobile No.** | 03312543160 |
| **Email** | mebrahim@iqra.edu.pk | **Gender** | Male |

Project Group/Team Details

| **Team Lead** | **Name** | **Gender** | **Mobile** | **Email** | **Institution Registration Number** | **Year of Study** | **Semester** | **CNIC** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| YES | Sarmad Raees | Male | 03152079646 | sarmadraees02@gmail.com | 37350 | 4 | 7 | 4220139403519 |
| NO | Ali Aurangzeb | Male | 03110847714 | aliaurangzeb1999@gmail.com | 37002 | 4 | 7 | 4210183409711 |
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| **Project Title** | Health Emergency Rescue Operation | | |
| **Project Area of Specialization** | Internet of Things | | |
| **Project Start Date** | 2020-01-10 | **Project End Date** | 2020-10-31 |
| **Project Summary (less than 2500 characters)** | Several thousands of people die day to day due to the time lag taken by the Ambulance service to reach the accident spot. This happens due to traffic jam, congestion in the city. Thus, it is necessary to introduce a distinct means that would take the objective of "saving human life" one step closer. A flying Drone which can reach the fatal cases faster than a normal ambulance which saves time and is designed to measures the different health parameters using its measuring devices. When a phone call is given to the emergency number, the emergency operator tracks the location and navigate using global positioning system. The ambulance drone enters the scene in the instant time. The drone consist of a mini patient monitoring system which comprises of variant sensors which can be conveniently attached to the victim body and the important parameters is measured and it is immediately sent to the ambulance as well as to the nearby hospital using global positioning system . The particular result helps the paramedics as well as the doctors to evaluate the situation quicker with better diagnostic and therapeutic choices. Therefore, the goal is to develop an all-purpose drone to deliver an AED in out of hospital cardiac arrest may be safe and feasible. By using a model appropriate for placement of UAVs, an AED compact drone may have the potential to reduce time to defibrillation in out of the hospital cardiac arrest. "Let's use drones for a good purpose, let's use drones to save lives". | | |
| **Project Objectives (less than 2500 characters)** | **1.saving human life:**  In the modern era, we have faced many problems related to our project, for example, Emergencies like Major or Minor accidents, Heart attack, or other problems. Due to traffic jams or other problems, paramedical staff reaches the destination in some time. In this situation, we have used this GPS navigation drone. The Drone will reach accident place in minimum time with first aid to provide first aid to the affected people. The witness who will be present at that incident place. He will pick up the first aid kit from the drone and provide the first aid to injured people. Due to the use of this Drone in Emergencies save many lives.  **2.Delivered blood sample in Hospital:**  Drones could deliver medicine to the bedside of a patient from the pharmacy, thus eliminating some human steps. This would lead to more rapid and less error prone administration of medications. Nurses and pharmacists can work more efficiently as supplies can be summoned to the bedside instead of the time-consuming task of gathering necessary items.Drones could deliver medications and supplies to patients being cared for in the home instead of a hospital-based setting. The future will see more outpatient care and even home-based care that used to be delivered in the hospital. For many conditions, drone technology may make it easier and safer to provide this home-based care. When a provider rounds on a home patient, blood can be drawn and immediately sent by drone to the lab to be tested. Medications, antibiotics and treatments ordered by the provider may be delivered to the home by drone. | | |
| **Project Implementation Method (less than 2500 characters)** | As Robotics has always been an emerging field due to which it provides a gateway and shows adaptability of new and revised research and development methodologies. The development life cycle of our product consists 7 phases:   1. problem identification 2. requirment gathering 3. hardware development 4. software development 5. integration 6. testing 7. deployment | | |
| **Benefits of the Project (less than 2500 characters)** | 1. The first minutes after an accident are critical and essential to provide the right care to prevent escalation. Speeding up emergency response through our Drone can prevent deaths and accelerate recovery dramatically. 2. This is notably true for heart failure, drowning, traumas and respiratory issues. Lifesaving technologies such as an Automated External Defibrillator (AED), medication, Cardiopulmonary Resuscitation (CPR) aids can be designed compact enough to be carried by a drone. In this situation, we have used this GPS navigation drone. 3. The Drone will reach accident place in minimum time with first aid to provide first aid to the affected people. The witness who will be present at that incident place. He/She will pick up the first aid kit from the drone and provide the first aid to injured people. Due to the use of this Drone in Emergencies save many lives. 4. The drone will autonomously flow the track from launch site to emergency site just by giving the Patient location. | | |
| **Technical Details of Final Deliverable (less than 2500 characters)** | In this modern age of technology, Drone has become one of the most popular inventions in the field of science. A Drone, also known as UAV (Unmanned Aerial Vehicle) uses four propellers or six propellers for lift and stabilization. The rotors are directed upwards and they are placed in a square formation with equal distance from the center of mass of the Drone. The Drone is controlled by adjusting the angular velocities of the rotors which are spun by electric motors. Nowadays, Drone has received considerable attention from researchers as the complex phenomena of the Drone has generated several areas of interest.   1. Mission Planning Auto follow the track 2. Mobile Application. 3. Smart Altitude Hold. 4. Auto return to home or launch position(RTL). 5. Can carry First Aid Kit or defibrillator. 6. Autonomous Flight. 7. Failsafe protection. 8. Obstacle Avoidance. 9. Real time video transmission 10. 32% faster than Local Ambulance. 11. Drone can travel at the speed of 70 km/h within the radius of 2km. | | |
| **Final Deliverable of the Project** | HW/SW integrated system | | |
| **Core Industry** | Health | | |
| **Other Industries** | Transportation | | |
| **Core Technology** | Robotics | | |
| **Other Technologies** | Internet of Things (IoT) | | |
| **Sustainable Development Goals** | Good Health and Well-Being for People, Industry, Innovation and Infrastructure | | |

Project Details

Project Key Milestones

| **Elapsed time in (days or weeks or month or quarter) since start of the project** | **Milestone** | **Deliverable** |
| --- | --- | --- |
| Month 1 | Requirement gathering and report. | Requirements and report finalized |
| Month 2 | Use Cases and Narratives and Functional and Nonfunctional Requirement Data-flow and Block Diagram | Use Cases and Narratives and Functional and Nonfunctional Requirement Data-flow and Block Diagram Use cases and Narratives, Requirements and diagrams Approved. |
| Month 3 | Purchasing Hardware Onsite | Purchasing Done accordingly. |
| Month 4 | Purchasing Hardware Online. | Purchasing Done accordingly. |
| Month 5 | Assembling Hardware(Frame, motors,ESC,Battery) | all the assembling is done accordingly. |
| Month 6 | Assembling Hardware(Flight Controller,Transmitter,Receiver,GPS,PPM encoder,Camera,Arduino UNO,Ultrasonic sensors,etc) | all the assembling is done accordingly. |
| Month 7 | integrating hardware | all the integrating is done accordingly. |
| Month 8 | testing hardware | Testing Done accordingly. |
| Month 9 | Development of mobile App | Development done. |
| Month 10 | Development of mobile App | Development done. |
| Month 11 | Integrating Hardware and Software | Integration done accordingly |
| Month 12 | Final Testing. | Testing done ready to launch. |

Project Equipment Details

| **Item Name** | **Type** | **No. of Units** | **Per Unit Cost (in Rs)** | **Total (in Rs)** |
| --- | --- | --- | --- | --- |
| Frame | Equipment | 1 | 9000 | 9000 |
| Battery 6200mah | Equipment | 1 | 7500 | 7500 |
| PixHawk 4 Controller | Equipment | 1 | 19500 | 19500 |
| 900kv motors | Equipment | 7 | 750 | 5250 |
| ESC 30 A | Equipment | 7 | 650 | 4550 |
| Arduino Uno | Equipment | 1 | 650 | 650 |
| ultra sonic sensors | Equipment | 4 | 200 | 800 |
| Battery Charger | Equipment | 1 | 2400 | 2400 |
| Adapter 5A | Equipment | 1 | 1200 | 1200 |
| Propellers | Equipment | 6 | 150 | 900 |
| Propellers extra | Equipment | 4 | 200 | 800 |
| micro SD16 GB | Equipment | 1 | 600 | 600 |
| Mini Osd | Equipment | 1 | 1650 | 1650 |
| flySky Fs-i6x | Equipment | 1 | 9500 | 9500 |
| Telemetry 433mhz | Equipment | 1 | 5700 | 5700 |
| Report Printing, Posters,Brouchers | Miscellaneous | 1 | 10000 | 10000 |
|  |  |  | **Total in (Rs)** | **80000** |



I affirm that all information submitted through this FYP application is correct and complete as to my best knowledge. I further agree that Ignite can approve, reject, defer or cancel this FYP application without mentioning any reason at any stage of NGIRI 2020. Information cannot be changed after submission.

Back

Bottom of Form