Work Evaluation Table

<Use the same factors you have used in "Work Evaluation Table" to build your own "Proposed and Previous comparison table ">

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|  | **Work Goal** | **System's Components** | **System's Mechanism** | **Features**  **/Characteristics** | **C**  **o s t** | **Speed** | **S**  **e c u ri ty** | **Performance** | **Advantages** | **Li mit ati ons**  **/Di sad va nta ges** | **Platform** | **Results** |
| Peter Harington Wai Pang Richard Binns | Goal (Objective): Create a network of multiple drones from commercially available ones. Problem to Solve: Enable coordination among autonomous drones to follow predefined flight plans | The system's building blocks involve the Parrot AR2 drone, which is essentially a common drone you can control via WiFi and has built-in navigation cameras. Wi-Fi is the tech glue that allows these drones to chat and share flight commands and data. Then, there are these NodeMCU Wi-Fi modules - they're like the middlemen, linking the drones | The Process(Mechanism) of this Work; Means How the Problem has Solved & Advantage & Disadvantage of Each Step in This Process The proposed model aims to create a network of drones that can work together autonomously or be controlled by a laptop. It leverages Wi-Fi communication, NodeMCU modules, and flight control functions to enable coordinated and collaborative drone missions. | Users can easily program various flight parameters, enabling direction and distance control. The solution allows the creation of drone networks for collaborative missions, thanks to WiFi communication | **-** | **-** | **-** | This work is good, as they tried improving the performance by nodemcu wifi modules. Even if any drone lose the connectivity alternate module is activated. | Drones can be programmed to follow predefined flight plans and execute commands, reducing the need for continuous manual control. | **Cost effective** | - | This work is good, as they tried improving the performance by nodemcu wifi modules. Even if any drone lose the connectivity alternate  It addresses a critical real-world problem, but its technical complexity and sensitivity to adverse weather conditions present practical challenges. Additionally, privacy concerns related to surveillance technology require careful consideration. The reliability of the human detection algorithm in diverse scenarios warrants further investigation. |

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|  |  |  |  |  |  |  |  | Telemetry radios are efficient, the mo |  |  |  |  |
| Kadi  Shiza nehwaz | The objective of this solution is to design and develop a portable agricultural drone that can be used for various agricultural applications. The agricultural drone provides a solution by offering a faster and more precise way to perform these tasks. | Mechanical Module: The mechanical module of the drone consists of the airframe, which is constructed using composite glass fibers, foam pad, plywood, and aluminum pipe. Electrical and Electronics Module and communication module | The project focused on creating a portable autonomous agricultural drone comprising three modules: mechanical, electrical/electronics, and communication. The mechanical module involved constructing the airframe with composite materials. | It takes advantage of various sensors, including GPS and cameras, to gather comprehensive environmental data. This data informs the system's core function: generating precise flight paths for the Unmanned Aerial Vehicle (UAV). | **-** | **-** | **-** |  | Precision Agriculture: Drones enable precision agriculture by providing real-time data on crop health, nutrient levels, and pest infestations. This allows farmers to make informed decisions and optimize their farming practices. | **-** | **-** | This work demonstrates detailed design and analysis, highlighting the drone's strengths in speed, payload, and stability. |

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| Anand  Ashok  Athul  midhur | This study aims to innovate wireless telemetry for autonomous drone navigation by interfacing a Raspberry Pi with a Pixhawk Mini 3DR using Python and Ardupilot. | The experimental setup comprises a 250mm carbon fiber frame drone with PM3DR, ESCs, BLDC motors, HC-05 Bluetooth, LiPo battery, and GPS. A Raspberry Pi interfaces with the Pixhawk Mini 3DR using Python. | The study aimed to link a Raspberry Pi with a Pixhawk Mini 3DR using Python for Bluetooth telemetry. Bluetooth, chosen for lower latency than radio telemetry (100ms vs. 250ms), facilitated successful communication | Bluetooth modules serve as the enabling technology for establishing short-range telemetry communication within this solution. | **-** | **-** | **-** | This solution revolutionizes drone autonomy, ensuring safe navigation in diverse terrains. It empowers applications such as infrastructure inspection and search operations, enhancing efficiency and safety. | . | **-** | **-** | Use of Mission Planner software for flight log analysis and comparison of vibration levels with limits highlights a methodical approach toward ensuring smooth drone operation. |

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| Emad  Arne poramate | Develop an adaptive obstacle avoidance algorithm for drones to navigate complex environments, preventing deadlock and collisions. This solution is vital for real-world applications like infrastructure inspection and search operations. | The drone, a quadcopter using a carbon fiber frame and 14" carbon propellers, hosts a PIXHAWK 2 flight controller with LIDAR obstacle sensors. Controlled by a neural network, these sensors enable adaptive obstacle avoidance, ensuring safe navigation through complex terrains. | Developing a quadcopter system, the focus is on adaptive obstacle avoidance in real-world scenarios. Requirements include safety, prolonged flight, and easy control strategy. | This adaptive obstacle avoidance system integrates LiDAR sensors to detect obstacles, employing a neural network for continuous navigation adjustments. | **-** |  | **-** | The system achieves an mAP of 86.4 on the testing set, outperforming R-FCN which achieves 67.7. It also shows more than 6% improvement in mAP on the testing set. | The advantages of the system include its speed, accuracy, and robustness. It is faster than YOLO and other object detection algorithms, while outperforming them in accuracy. It also shows improvement in accuracy for challenging images in nights. | **-** | **-** | This work introduces an innovative approach to drone navigation, employing advanced technology for autonomous obstacle avoidance. It exhibits strong potential in enhancing safety and efficiency in various applications. H |

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|  |  |  | OYOLO and R- FCN is added to improve accuracy further. Pre- processing using the histogram equalization approach is presented for challenging images in nights. |  |  | detection algorithm s. |  |  |  |  |  | rms other object detection algorith ms in terms of speed and accuracy  . |
| Sankula Likhith Krishna Guduru Sai Rama Chaitanya Abbasani Sree Hari Reddy Arasada Manoj Naidu S.S. Poorna K. Anuraj | The goal is to create a drone-based automated human detection system for Search and Rescue (SAR) missions, with the primary problem being the swift localization of disaster victims. | The paper describes the development of an autonomous drone system for human detection in disaster situations. It outlines the key hardware components used in the system, integration of these components into the drone, and a human detection algorithm employing motion detection. | The paper presents a drone-based solution for rapid human detection in disaster scenarios. It outlines the integration of key hardware components into the drone, such as the Pixhawk Flight Controller and a camera | it takes advantage of various sensors, including GPS and cameras, to gather comprehensive environmental data. This data informs the system's core function: generating precise flight paths for the Unmanned Aerial Vehicle (UAV). | **-** |  | **-** | Visual data from the UAV's camera Localization and identification of survivors, confidence | The human detection algorithm, particularly using motion detection and Kalman filtering, allows for efficient identification of individuals from the captured video. It offers the ability to track moving subjects and assign confidence scores to human detections, aiding in rescue prioritization. | **-** | **-** | It addresses a critical real-world problem, but its technical complexity and sensitivity to adverse weather conditions present practical challenges. Additionally, privacy concerns related to surveillance technology require careful consideration. T |

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