Date: 23.04.2021

ACTIVITY 4

Activity aim:

To create a document containing

- Requirements Table
- Scope Statement
- WBS
- Requirements survey - Google responses

1.Requirement table:

CATEGORY	REQUIREMENT	STAKEHOLDER	ACCEPTANCE CRITERIA
Fund	Primary element of project is Capital	Bank, Project Funder, investors, donors	Sign off on the preliminary cost estimate to be provided
IT support	Program Is required to function the drone	IT employee, IT students	App updates, bug fixing, IOT modules and sensors, data security to be provided
Mechanical Engineering	Making use of the components and make product work	Mechanical engineers,	Aerodynamics of the drones and design will scientifically be designed
Components	Materials is used to build the product	Retailers, vendors	High precision sensors, motors, rotators and drone components will be made specific for a design
Data Storage	Storage for the data collected by the drone	data managers, data architects, data Analyst	Data mining, Data engineering, Data Analysis will work together to get the final product(information)
Materials	Drone needs suitable materials to be stable in the air	Material engineer	The alloy metals, plastics will be made specific for a given design

2.Scope Statement

Description:

Technology has changed over time. Today, agriculture is one of the major industries to incorporate drones. Drones are being used in agriculture in order to enhance various agricultural practices. The ways ground-based and aerial-based drones are being used in agriculture are crop health assessment, irrigation, crop monitoring, crop spraying, planting, and soil and field analysis.

Also, usage of drones in battle field is one of the main strategies now-a-days. The ground based and aerial based drones with thermal sensor can be used in tracking terrorist and could be useful in path clearance while in attack.

Project Objective:

- To implement drones with all the necessary technology so that it could be used in various aspects.
- The project needs to be designed and implemented successfully on right time.
- Also, the project needs to be done on the estimated cost.

Deliverables:

- Need to done at right time.
- The project must be user and ecofriendly.
- The project should be in good quality and also at low cost.
- The project should be delivered without any limitations or drawbacks.

Milestone:

- 16/04/2021 to 30/04/2021 - Project Design.
- 01/05/2021 to 15/05/2021 - Designing the blueprint of project.
- 16/05/2021 to 15/06/2021 - Manufacturing of Product.
- 16/06/2021 to 15/07/2021 – Installing and demo of the product.
- Finally, introducing it to the stakeholders, public peoples etc.

Assumptions:

Requirement	Target	Characteristics
Video-Based	Image object and motion detection.	Range < 350 ft
Sound - Based	Hissing high frequency around 40kHz	Range 25-30 ft
Radar – Based	Backscaffering of electromagnetic waves Doppler and micro-Doppler effect	Detecting small quad-copters
Temperature	Thermal heat produced by body	Range < 350ft
Radio Frequency	Control and video transmission over RF	Range < 1400 ft
Wifi Based	Piloting and video using wifi protocal	Wifi working range from satellites

Technical Requirements:

All of these unmanned aerial survey drones which are ready-to-fly and are equipped with all the software, sensors and hardware you'll need to check the health of crops, track livestock, survey farmland and to track the terrorists using necessary thermal sensors, tracking devices, surveillance recordings time to time.

Justification:

- The major benefits of using drones include
    - crop health imaging
    - The aerial view provided by a drone can reveal many issues such as irrigation problems, soil variation and pest/fungal infestations.
    - The aerial view will also provide surveillance in battle field by tracking enemies by their thermal body temperature.
    - Multispectral images show a near-infrared view as well as a visual spectrum view.
- With strategy and planning based on real-time data collection and processing, drone technology will give a high-tech makeover to the agriculture industry and in surveillance.

High Level Requirements:

1. <u>**User:**</u>
    - Eco and pocket friendly.
    - Reduces the illegal entry of terrorists in borders and peoples detection if any disaster.
    - Brings more safety to the peoples and environment.
    - Helps to keep track on crops by monitoring it using spectral view of the drones.
    - Gives intimation to the framers regarding the crop quality in agricultural industry.

2. <u>**Admin:**</u>
    - Can track the location of enemies, reveal the crop status using images etc.
    - Maintains the records from his end.

Project Budget:

- Min Cost – 30,000
- Max Cost – 40,000

Stakeholder's list:

- Farmers.
- Rescue Officers.
- Army officials.
- Security officers.

Limits and exclusions:

- Project manager is responsible for the successful completion and implementation of this project.
- Project manager should ensure the software, hardware and network https://app.creately.com/diagram/KxFaR3nuaRX/edit materials are working properly.

3. WBS:

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                              │  Drones using   │
                              │ IOT for modern  │
                              │     world       │
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Requirements gathering	planning	designing code and drone structure	Testing	Control	advertising	close out	final report
Team formation	Planning project scope	Gathering required sensors for specific sector supporting drone	security of drone	Project Meeting	advertising with google ad sense,social media	document lessons learned	
Project identification	Planning project schedule	material analysing for the drone	rough condition testing	Stakeholder Meeting	spreading awarness how drones are usefull	update files/ records	
Project idea evalutation and recomendation	Identifying stakeholders and conducting meeting	coding for sensors to work together	battery performance stability testing	Approval Points			
	creating project charter		maneuverability test	Risk Management			
	WBS and requirement engineering		White Box Testing				
	Planning design and architecture of Drone						

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