Design of flying Car to articulate foreign object with Short Range Radar and Laser Gun

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Abstract— The design of flying car CATIA V5 and fixing the short range radar to it. This radar is capable of destroying the foreign objects with the laser gun. When the foreign objects are detected the laser gun automatically locate the target and destroys it. This consists of a distance finding device using ultrasonic transducer and Ultrasonic sensor has transmitter and receiver.servo motor to rotate the radar 360 degrees .The Radar is operated through PC using wireless ZIGBEE technology and using wireless camera you can view both audio and video on the LCD screen.

Keywords: —Aircraft, Flying Car, CATIA V5, Laser gun, Wireless camera, Zigbee technology, Ultrasonic sensor.

1 INTRODUCTION

The recent aircraft accident due to error in the communication between ATC and the pilot[1][2], so we designed short range radar that is fixed in the aircraft and the radar consist of the camera which is rotates 360 degrees and continuous transmit the video to the system and the short range radar consist of the laser gun which will destroy the foreign objects. Thehigh rate of aircraft accidents can be avoid from human errors with the short range radar[3].Flying car is designed in CATIA V5 and done Ansys on gambit and fluent to find out whether the design is stable. The aircraft is designed.The short Range radar is fixed on the nose of the flying car.The flying car will be used for both commercial and military purpose and it will be used in road to sense the obstacles and parking aidwith higher precision, longer range and higher update rates than conventional ultrasonic systems[4].The designs offlying car with short range radar and laser gun is articulated to destroy the foreign objects and missiles. The laser gun is fixed in the nose part when the foreign objects appear the laser gun will destroy it.

II CIRCUIT design of short range radar

POWER SUPPLY SYSTEM

The step down transformer is used because 230 AC voltage cannot be used directly, thus it is stepped down. The output from the secondary coil is also AC waveform. The Rectifier circuit is used to convert the AC voltage into its corresponding DC voltage. The ripples from the DC voltage are removed and pure DC voltage is obtained so Capacitors are used as filter. Regulator regulates the output voltage to be always constant.

Recent development in relevant technologies such as multichannel antennas with electronic beam steering, high speed digital processors and computers, high capacity communication links, and precise synchronization systems, e.g. GPS (Global Positioning System), give rise to the possible implementation of low cost and stable radar systems [5]

The short range radar detects any obstacle and destroy the foreign objects by using laser gun[6]. The short range radar will used to find out any object and destroy the foreign objects with the laser gun.Wireless camera will be used to view both audio and video on the LCD screen and can store the data.

Block diagram for the short range radar

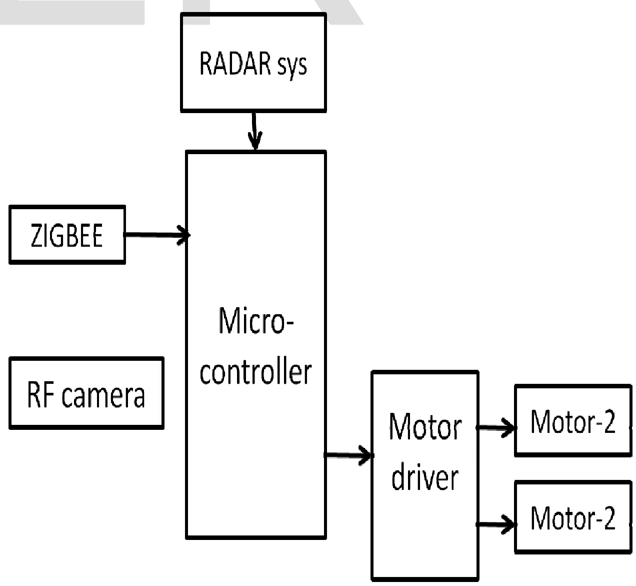

Fig-1 Conceptual design of flying car in CATIA V5

In sketcher we use commands like rotation command, circle and then exit in work bench and apply pad, circle array, plan and fillet

III .A Flying Car Body

The aerodynamic forces and moments on the body are due to only two basic sources, pressure distribution over the body surface[7].

In sketcher we used spline for outer sketcher body with the help of dimension and then we used pad command in work bench again we enter into sketcher and we used circle, line, spline, command for exact shape to design and then exit in work bench apply pad, pocket, fillet, plan, champer, for command for flying car design

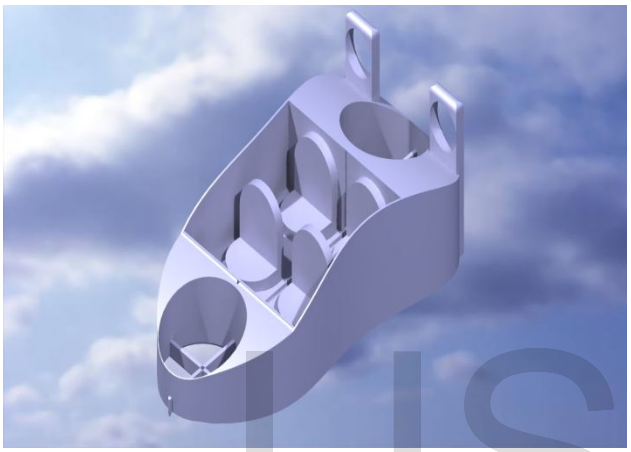

Fig-2 Flying car body

B. Landing Gear

Landing gears of an aircrafts is one of the most important component. Several sub-systems such as tires, brakes, structural elements retraction and locking devices, the hydro-pneumatic springs- damper and control systems. The main purpose of the landing gear is to dissipate the energy at landing and to safely transpose the passengers or payload, during ground operations.We used commands like circle, line, and then apply pad, plan, fillet to get landing gear.

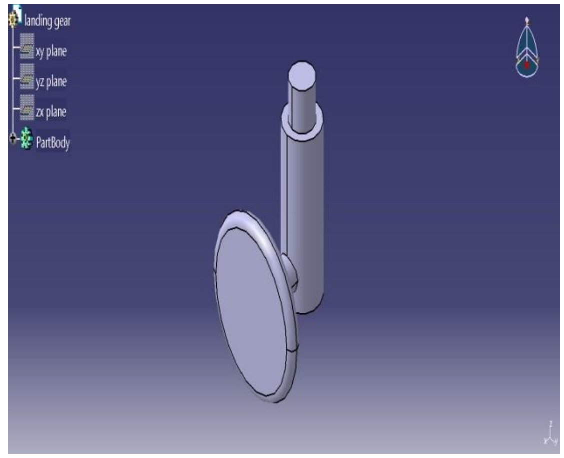

Fig-3 Flying car landing gear

C. Engine

Modern commercial aircraft employ high bypass ratio (HBPR) engines with separate flow, nonmixing, short duct exhaust systems. These propulsion systems are known to generate significantly high noise levels due to the high-speed, high-temperature, and high-pressure Nature of the exhaust jet. The primary source of jet noise is the turbulent mixing of shear layers in the engine’s exhaust [8]. These shear layers contain instabilities that lead to highly turbulent vortices that generate the pressure fluctuations responsible for sound[9].In order to reduce the noise associated with jet flow ,the aerospace industry has focused on developing various technologies to disrupt shear layer turbulence and reduce the overall noise produced. Due to the heavy noise we designed the chevron nozzle to reduce the noise levels in the flying car. In sketcher we use line command then we enter into workbench and apply shaft, circle pattern array, fillet and pocket.

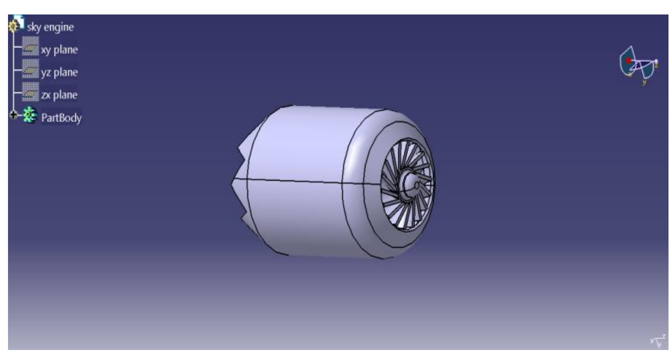

Fig-4 Flying car engine

D. Blade

The blade is used for the vertical takeoff of flying car. In sketcher with the help of circle, spline and line, then exit in work bench and we used commands like pad, circular array and plane.

Fig-5 Blade

IV Assembly of flying car

The assemble of flying car parts in assembly with contacts coincides offsets and fix.

Fig-6 Isometric view of Flying car

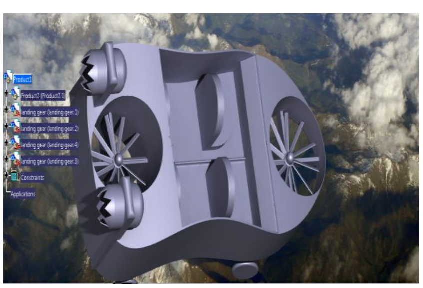

Fig-7 Top view of flying car

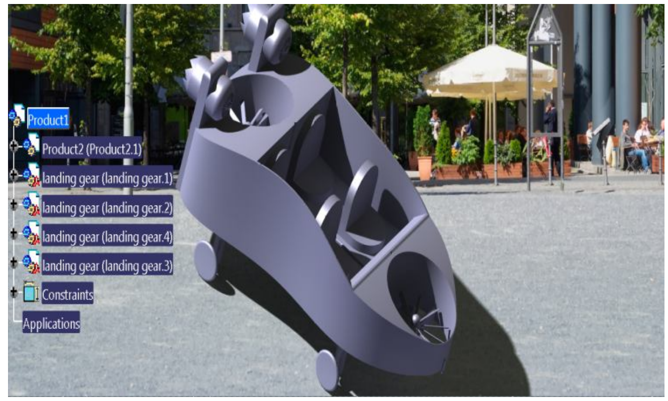

Fig-8 Isometric view of flying car

The short range radar detects any obstacle and destroy the foreign objects by using laser gun. The system shows good performance to support a long range radar in stop & go and cut-in situations. Blind spot surveillance only needs presence detection with precise distance measurement which can be done very well with a single sensor.

The design of flying car with short range radar and laser gun will give the future enhancement with Short range sensors detect objects in critical zones. The design and performance of Flying Car in detail by using CATIA V5. The flying car design consist of the vertical takeoff (VTOL). Obstacle Detection: This ultrasonic sensor operating range can be used to warn of unseen objects.

The performance of the flying car in Gambit and Fluent

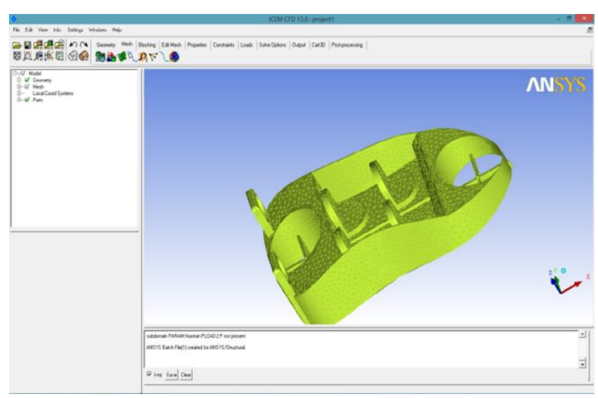

Fig-9 Simulation

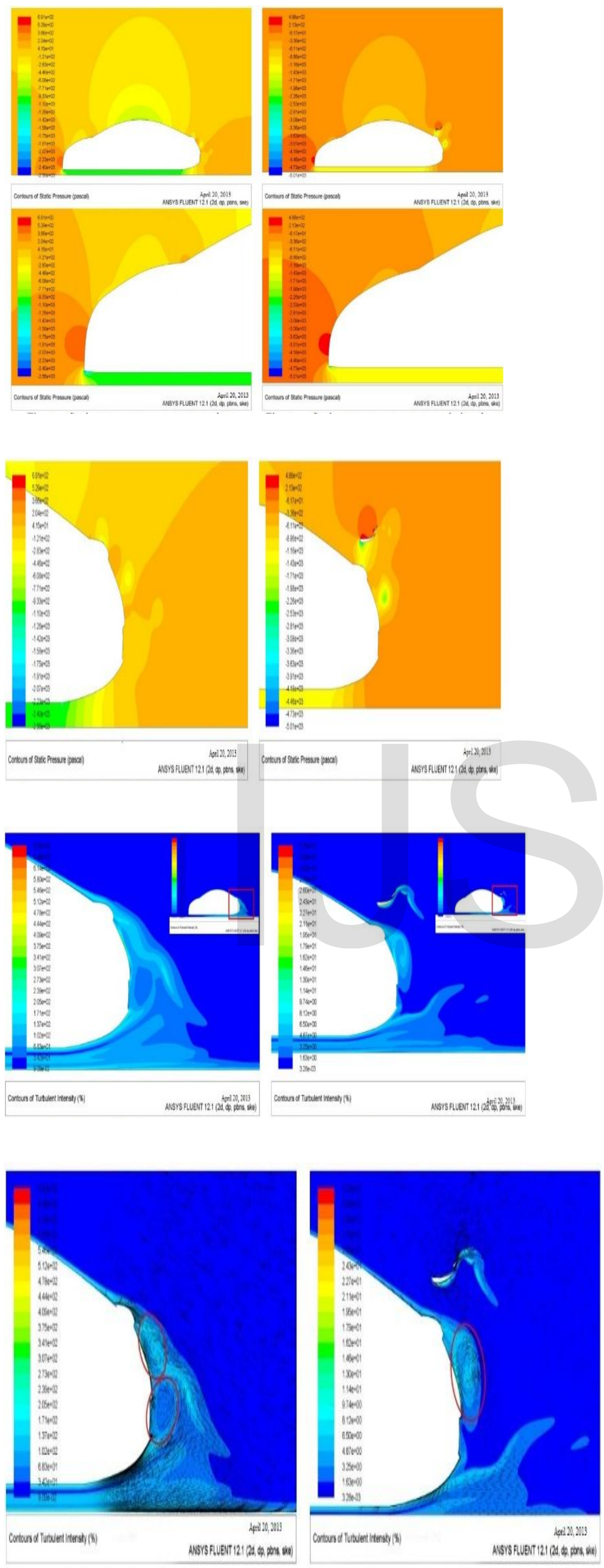

Fig-10 Simulation Results

Best Downforce at 100 mph	Best Downforce at 150 mph	Best Downforce at 220 mph	Best FW – RW AoA combination	Max/ Min Drag Coefficient	Overall
None	1475 N	3250 N	FW: 6 deg	0.83	Drag: Excellent
	D/W: 0.2	D/W: 0.46	RW: -3* to +2**	0.75	Downforce: Poor

Final performance of the flying car

CONCLUSION

The flying car will be use for both commercial and military purpose and it will be used in road to sense the obstacles and parking aid with higher precision, longer range and higher update rates than conventional ultrasonic systems. Wireless camera will be used to view both audio and video on the LCD screen and can store the data.

The designs of flying car with short range radar and laser gun is articulated to destroy the foreign objects and missiles. The laser gun is fixed in the nose part when the foreign objects appear the laser gun will destroy it.

An experimental vehicle is equipped with such a sensor network to get experiences with measurements in realistic street situations. The system architecture was described and an overview of the signal processing steps was presented.

Convincing results from realistic street traffic situations confirm the feasibility of the complete system and are encouraging for further research activities. There are still technical problems to overcome before so-called road able aircraft or flying car can become main means of personal transport. The future of the flying car will depend on successful airworthiness and road certification

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