



ABSTRACT

This project describes a design and implementation of software environment using MATLAB R2006A for simulating and visualizing high-performance helicopter systems. The environment also accommodates data exchange. The design used MATLAB as a platform on personal computer directly interfaced to the helicopter compare via its remote control. Hence, the design method is able to control the helicopter using by computer as well as remotely controlled. There are four main parts; hardware (transmitter), helicopter model, remote control and software (MATLAB). The computer is interfaced to a transmitter on the helicopter by a parallel connection. This helicopter in consist of 4 channel transmitters and it can simulate most flying attitudes of modern helicopter. A helicopter visualization model is designed and implemented in MATLAB and Simulink by developing Graphical User Interface (GUI). This model will be used to visualize a scaled model helicopter in order to assess the helicopter's attitude during different fly modes.

OBJECTIVES

- ~ To design helicopter controller using MATLAB.
- ~ To reduce cost in designing controller.
- ~ To produce mini helicopter controller with high performance.
- ~ To develop Graphical User Interface (GUI) using MATLAB software.

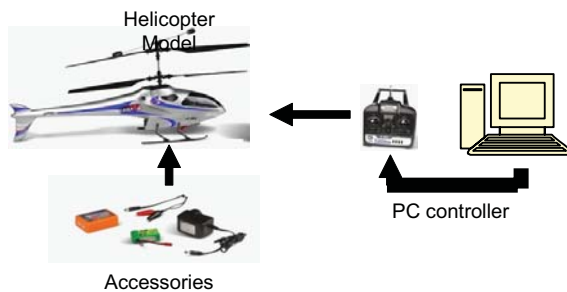


Figure 1 : Block Diagram of The Operation of Helicopter Controller

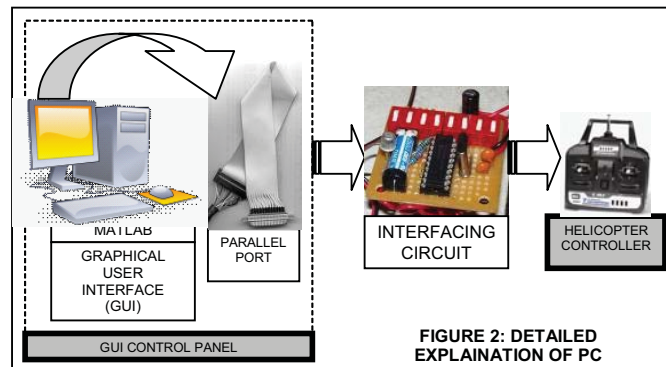


FIGURE 2: DETAILED EXPLANATION OF PC

ADVANTAGES / BENEFITS

The usage of the project is to monitor of a particular job-functioned for research and analyzes some area by using its Graphical User Interface (GUI) control platform. Therefore, further design of PC-based remote controller will be developed to integrate and configure with the GPS systems and some sensors of the flying vehicle. By using the MATLAB software, image analysis and configuration as well as developing control algorithm. In addition, the helicopter controller could also be used for research of other intelligent control, embedded control system, monitoring, safety and other particular case situations.

Researchers Info

Nor Sarizan Binti Mat Youb
 Alias Bin Khamis
 Hyreil Anuar Bin Kasdirin
 Hairol Nizam Bin Mohd Shah
 Muhammad Herman Bin Jamaluddin

Tel : +6(06)-555 2315
 Fax : +6(06)-555 2222
 E-mail : hyreil@utem.edu.my

NOVELTY

The project is designed a PC-based controller using MATLAB as its platform for a submanned aerial helicopter. The helicopter control is interfaced with PC via parallel port and integrated with the Graphical User Interface (GUI) by using MATLAB software.