

QUADCOPTER

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INTRODUCTION

Aerial vehicles without pilots, or Unmanned Aerial Vehicles (UAVs), have been gaining more and more attention. These vehicles are being used in various applications:



Aerial surveillance



Disaster relief operation:
Search and Rescue



Aerial photography

In light of many usages of a UAV, a four-rotor helicopter or so called Quadcopter was designed, built and evaluated in this project. Knowledge of mechanical structure, control systems, micro-controller programming, as well as software programming was all needed in the project.

OBJECTIVES

The primary purpose of this FYP is to build a quadcopter which can:

- 1 • Take off and land safely
- 2 • Hover steadily
- 3 • Follow user's commands
- 4 • Shoot video footages
- 5 • Shoot panoramic photos

DESIGN

Airframe

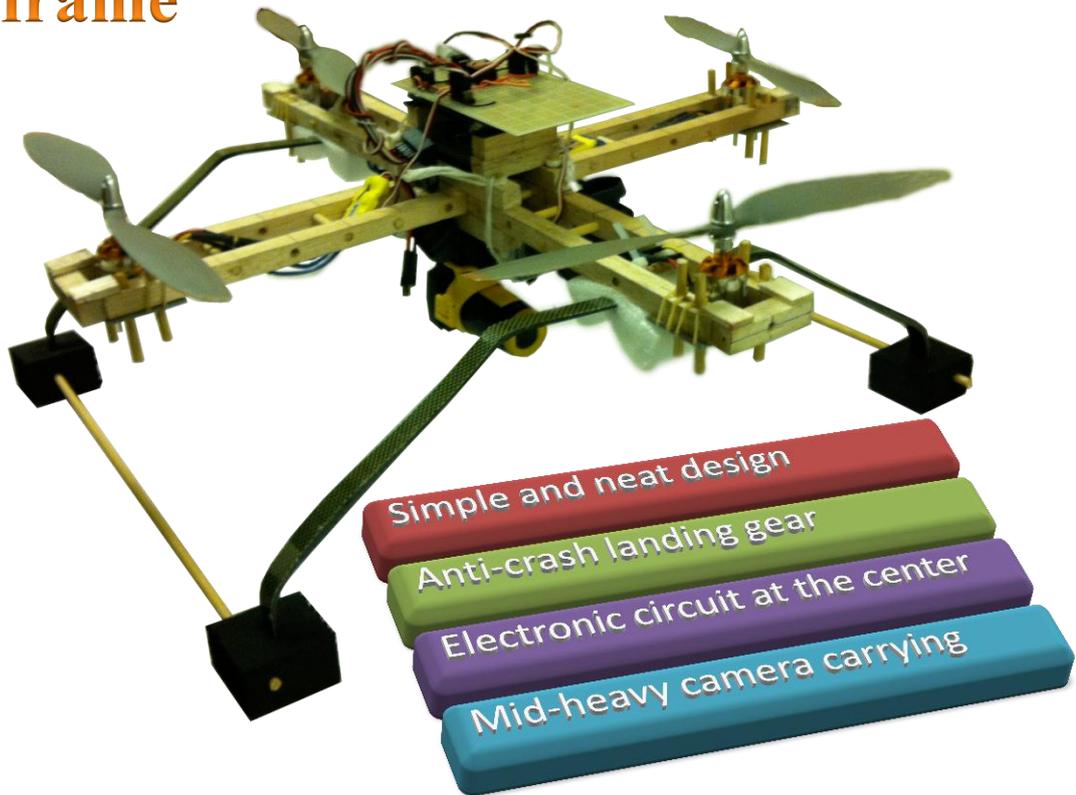


Figure 1: *Quadcopter final look*

Control method

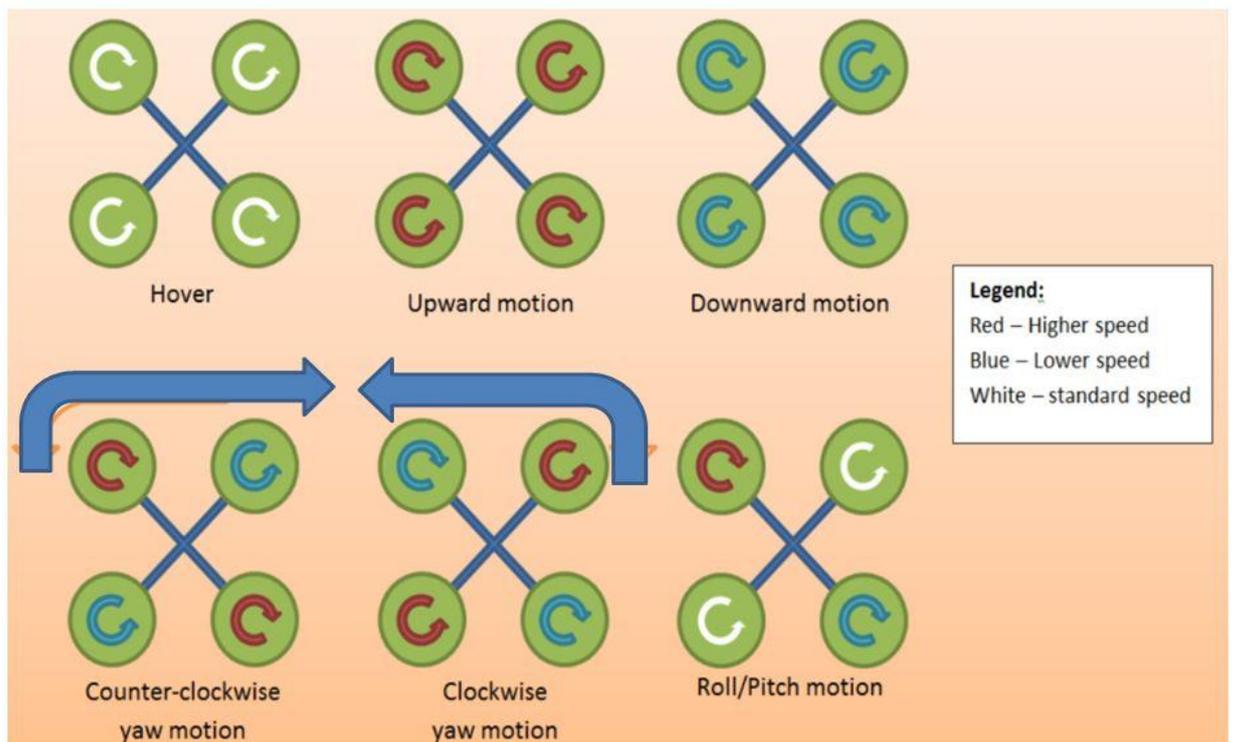


Figure 2: *Quadcopter working principle*
(Reverse rotational directions of motors on the same axis)

IMPLEMENTATION

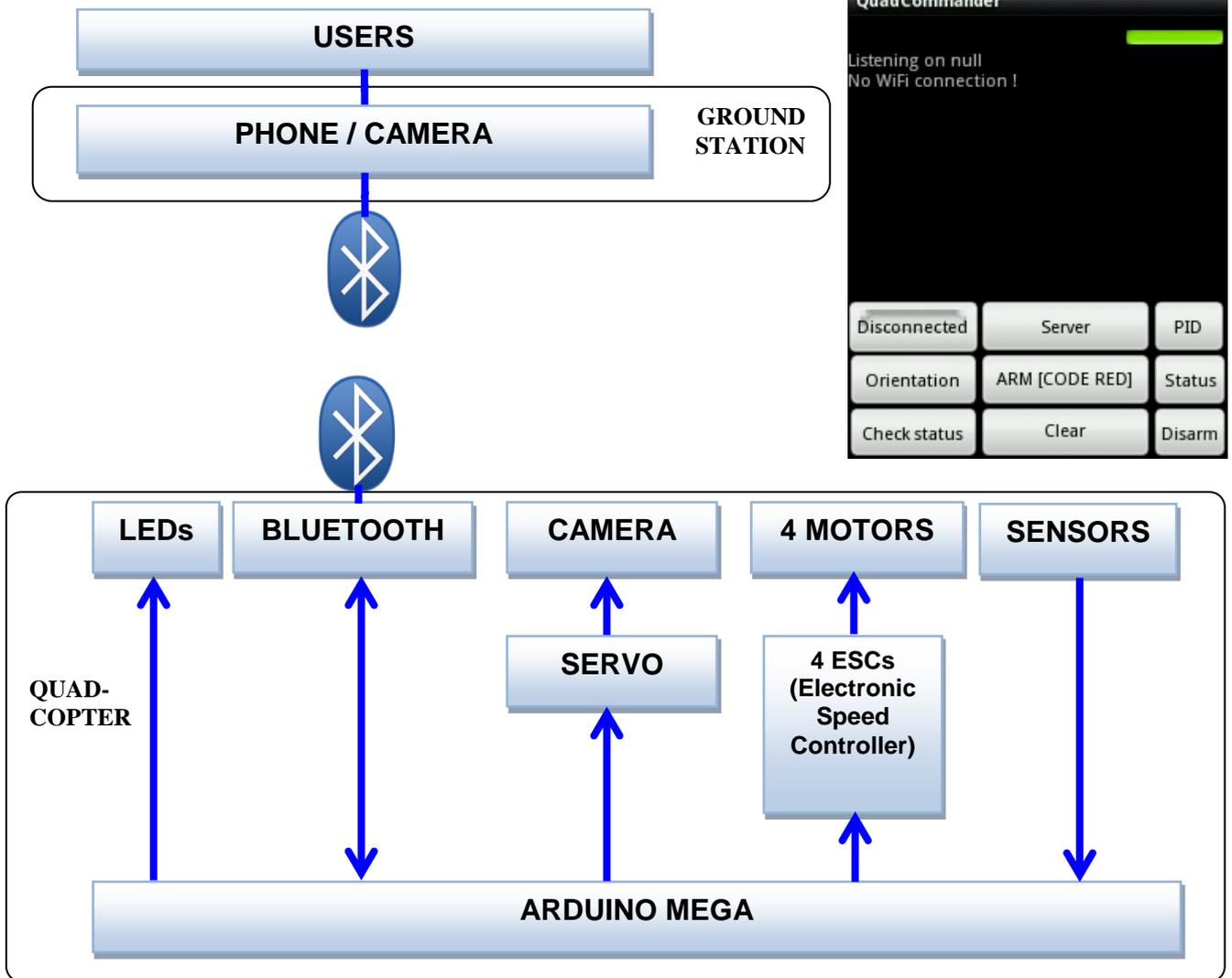


Figure 3: *Implementation methodology*

TESTING AND RESULT



Figure 4: *Panoramic result*