

2012

**Group Charter**

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9/23/2012

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# Introduction

It is the aim of this document to outline the goals and the QuadAutomotive structure.

## Purpose

The purpose of the project is to build a flying car. The QuadAutomotive Group defines a flying car as commuter vehicle capable of transporting at least a single individual to and from a destination by means of controlled flight no greater than 500ft above ground level and no less than 30ft during navigated operations. In addition the vehicle must control all aspects of flight to include navigation and flight control. The occupant of the vehicle must only provide their destination. The vehicle must be able to translate current location and provide the safest and fastest route possible.

## Safety Concerns

With any project that has the potential to cause human life loss or injury it is of the upmost concern to insure every precaution is taken. The team must take every effort to put in place procedures that insure the safety of not only the occupant of the vehicle but also the potential bystanders on the ground. In addition redundant systems must be in place to insure the vehicle has proper backup power systems and flight stability systems.

## Project Phases

This project will be broken down into several phases. The initial goal is to complete the project in three phases however the executive team will vote based on the test results of each completed phase and decide if additional phases are needed to insure safety and reliability of the next phase of the project.

# The Executive Team

The executive team is a group of individuals voted into several positions within the group of team members in good standing with QuadAutomotive Group. The Executive Team consists of a President, Vice President, Secretary, and Treasure. Members of the Executive team may hold more than one position with the exception of the president who can only be the president. The executive team can also be members of Engineering Committees. The executive team will meet once a month at a time a location of their choosing. The executive meetings can be virtual meaning use of video conferencing however in person meetings are preferred. To be voted into the Executive team a group member must not be a student member.

## The Executive Team Purpose

The purpose of the Executive Team is to facilitate the progress of the Project. This is done by evaluating and directing Engineering Committees on their focus.

## Executive Positions

### The President

The president holds a two year term and is ultimately responsible for all aspects of the project. He will bring all Executive meetings to order and insure all Executive meeting agenda Items are covered. The president will reside and bring to order all Group meetings with the exception of Engineering Committee meetings he is not a member of.

### The Vice President

The vice president holds a two year term and is the right hand man of the president. The vice president will backup and fill in when the president is unable to facilitate a meeting. And will take on the president’s duties if the president is absent.

### The Secretary

The secretary is responsible for all documentation of meetings and communications. The secretary will also be in charge of all public communications; meaning maintenance of Website Content and press releases. In addition the secretary is responsible for storing and making available all group records to the executive team. The secretary is also responsible for taking meeting minuets.

### The Treasurer

The treasurer is responsible for keeping track of all finances and producing status reports to the executive team. The treasurer will all produce an annual report for the groups finical status and prior year activities at the first group meeting of the year. The treasure is also responsible for collecting dues from all members for deposit into the group account.

# Engineering Committees

Engineering Committees are a group of members focused on completing a given engineering problem. An engineering committee may have sub committees or work with other committees to integrate or validate their design before implementation. A few examples of engineering committees would be a groups focused on collision avoidance systems, Vehicle body and Frame, Stability Control systems, Navigation Systems, etc… An executive team member may sit on an Engineering Committee.

Each engineering committee must produce a charter that outlines the Problem to be solved, obstacles, goals, and Finical impact before the committee can begin any work. This Charter must be presented to the Executive team during a normal session and will be voted on. The executive team will assign a Committee president to be responsible for achieving the Committees goals. The Charter may recommend a committee president however the executive team has the authority to override the request.

# Group Membership

Group Membership falls into four categories: Student Membership, Standard Membership, Investor Membership, and Founder Membership. To become a member of the Group a candidate must fill out an application, and provide proof they are US citizens. Candidates must have a sponsor member meaning an existing member must recommend and mentor them during their first year of membership. The sponsor member is responsible for the member candidates conduct to an extent. During the first year a member candidate must prove they will contribute to the success of the group as a whole. Because this is a group to achieve a long term goal every member must contribute to the group. Dead weight will be dropped. In addition all members will pay a monthly due voted upon by the executive team based on Membership level. Members are entitled to Stock in the group. Since the goal of the group is to produce a product to be manufactured dues equate to investment into the group. All time and non-monetary contributions do not equate to additional stock. Member candidate’s dues accumulate stock however the stock is not awarded until the candidate is voted into the group after their first year. Any member can be voted out of the group at which time their stock in the group will cease to be awarded however they can cash out their stock or keep their stock in the group for up to 5 years. A member can also assign one beneficiary which can be an estate in the event of their death. However on a members death their membership ends with them it cannot be transferred.

## Membership Categories

### Student Membership - $15 a month Dues

A student member is any member under 18 and older than 13. These members cannot legally own stock so even after their first year their stock will not be awarded. However if they continue to be members in good standing the first January after they turn 18 their accumulated stock will be awarded and standard membership status is awarded. Student members must be at least an apprentice member of one Engineering Committee at all times to remain in good standing. Student Members cannot be disruptive to the progress of the group and the Engineering committee president that they participate in can bring the student member to the executive committee for a revocation of membership and future rights to stock. Student members must attend 2/3 of all Engineering Committee Meetings and at least 10 of the 12 Group meetings a year. a student member can vote on who can be a member of the executive team however they cannot serve as an executive team member.

### Standard Membership - $25 a Month Dues

Standard members are at least 18years of age and must sit on at least one Engineering Committee. They must also attend 10 out of every 12 group meetings a year and 2/3 of the Engineering Committees they are members of. A candidate Member falls into this category if they are over 18, and must meet all of the requirements of this membership.

### Investor Membership

Investor Membership is a special membership level with fewer requirements for attendance and time commitments however it comes at a cost. We can consider them silent members. They see the potential for the group and want to be a part of the group; however they do not either have the time to participate or the desire to serve on an engineering Committee. They must pay an annual due of at least $5000 and attend the annual Status Group Meeting held in January. Investor membership does have one drawback and that is they cannot be voted or serve on the Executive team except in the event that all founding members cease to be in good standing.

### Founder Membership

Founding member are the members who have signed this charter to start the group. In many respects they are Standard members with the same responsibilities to the group. They are simply designated as Founding members. They must also pay the standard Monthly due however they can pay a larger due if they want to. Also as Founding members there is no time limit if they choose to leave the group on when they cash out their shares.

# Group Funding

The group is initially funded through membership dues. However future funding can be achieved through fundraising tools. No fundraising can result in exchange for stock with the exception of investor membership. Crowd sourcing tools such as kickstarter can be used to raise funds however the executive team has full control over it. No Engineering Committee can go out on their own and start a kickstarter or other fund raising event without a vote from the executive team. The group can also use events such as competitions to raise funds.

# Initial Engineering Committees

Upon the start of the Group there will be several engineering committees in which the Founding members must fill all of the positions. There will be some long standing Committees that will be presided by the executive team. These committees will sponsor additional Committees.

## The Safety Committee

This committee is responsible for the safe conduct of all other committees. They will produce and monitor procedures for safe conduct of all other committees.

## The Communications Committee

This committee is responsible for all Air to Air and Air to Ground Communications systems. They will be responsible for any system that produces RF Communications.

## The Sensors Committee

This committee is responsible for all Sensor related systems including Inertial Management Unit and GPS while RF based falls under sensors since it produces Sensor Data.

## The Navigation Committee

The Navigation Committee is responsible for the systems that control and direct flight heading and waypoint management.

## The Flight Stability and Control Committee

This committee is responsible for insuring stable flight systems and taking all the Sensor data and making good use of it for stable Flight. This group will also be responsible for Motor Control Systems.

## The Hardware Committee

This committee is responsible for any electronics development and will produce and review all electronics systems before releasing them to be manufactured.

# Project Phase Alpha

The Alpha phase of the project is one of the most critical as it must prove out several huge safety concerns. First can the group produce a Quad copter Prototype that can fly autonomously without human intervention other than to give it a series of waypoints and maneuvers. Secondly can the communications systems provide enough information to allow multiple Quad copters to talk to each other and provide a virtual radar system of other flying vehicles to allow the navigation systems of each quad to nogiate altered flight paths to avoid a collision?

# Project Phase Bravo

The second phase of the project involves building a large scale version of the quad this quad will be a become the prototype for human flight testing. In this stage we will scale up the initial design to support the weight of a human test pilot. However in this phase we will not actually place a human in the vehicle. Tests will be performed to the safety committees’ procedures. Additionally prior to moving to phase three weight will be added to the passenger area to insure that the craft has the thrust and power systems to maintain stable flight.

# Project Phase Charley

The Third Phase of the project contains the final steps for releasing the flying car. Human flight tests will be performed in this step with increasing distances and multivehicle tests and collision avoidance systems will also be tested again. Finally marketing and press announcements will be accomplished. Additionally at this point the group becomes a full-fledged corporation and stocks are distributed based on the dues up to this point.