

# Remote Controlled Helicopter

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# Overview

- Client and Requests
- Helicopter facts
- Needs
- Objectives
- Constraints
- QFD
- Gantt Chart
- Future

# Client and Requests

- Client is Dr. Raju
- Scale remote controlled helicopter by 1.5
- Perform as the original helicopter if not better
- Have the capability for a live feed video camera
- Have a respectable battery life
- Durability

# U13A-RC Helicopter

- Battery
- Blades
- Stability
- Lights
- Camera
- Dimensions



Figure 1: Remote Controller Helicopter

# Controller

- Frequency
- Functions
- Display
- Buttons
- Controlling radius



[1] Figure 2: Wireless Remote Control

# Needs & Goal

## **Need:**

Create an upscale fully functioning remote controlled flying vehicle that has the capability for attachments for various real world applications.

## **Goal:**

Successfully upscale a remote controlled helicopter with the ability to add mission specific accessories.

# Objectives

- Interchangeable attachments
- Battery compatibility
- Carrying capability
- Waterproof
- Range
- Stability

# Constraints

- Size- increased by 1.5x
- Lift- enough to maneuver with added weight
- High strength to weight ratio
- Satisfactory battery life
- Remotely controlled



# Constraints (cont'd)

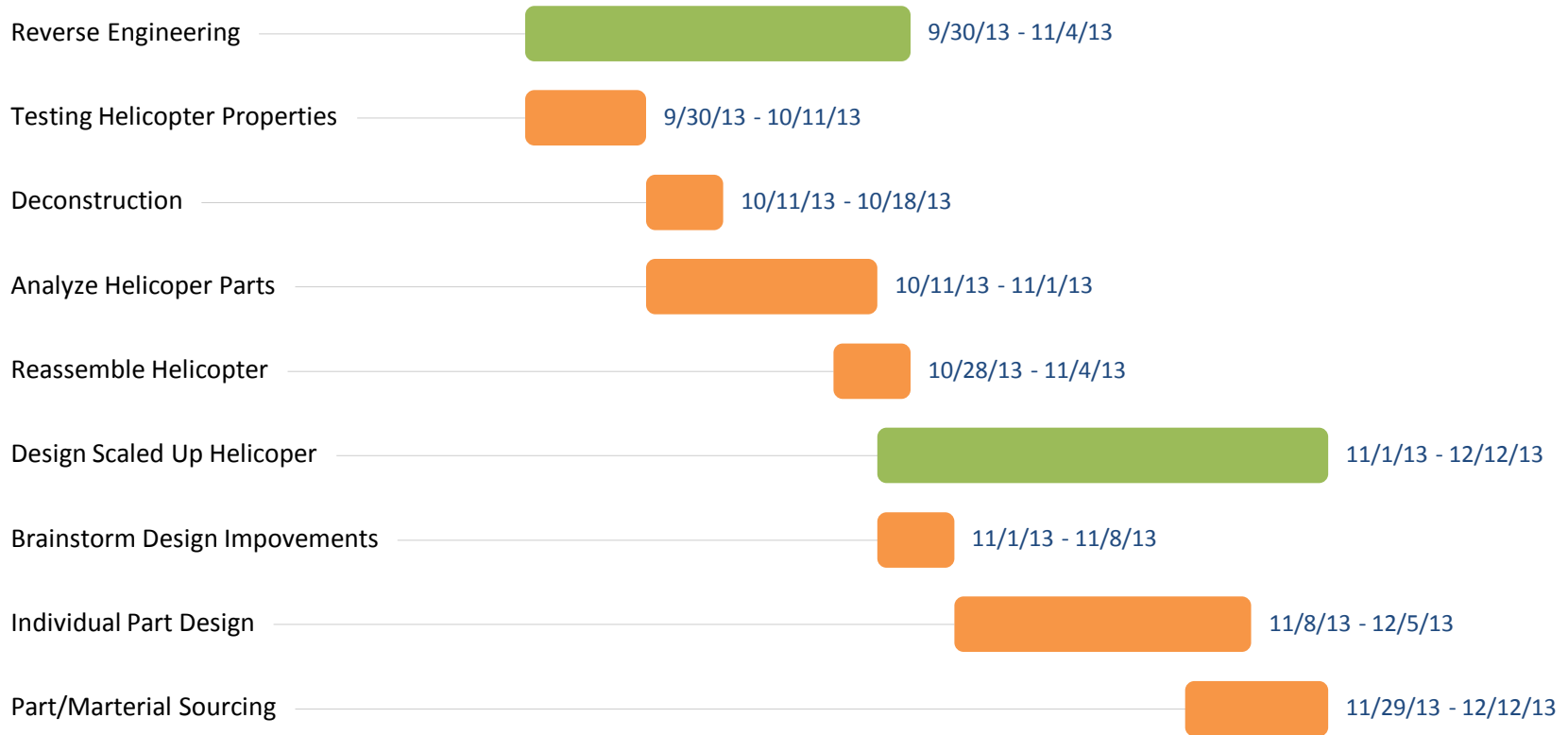
- Accessories can be attached
- Live data reported remotely
- Time- 1 semester design/1 semester build
- All costs must be justified

# Engineering Requirements

- Yield Strength [psi]
- Weight [lbs]
- Power [ft-lb/s]
- Length [inches]
- Lift [lbf]

# Quality Function Deployment

		Engineering Requirements				
		Yield Strength	Weight	Power	Length	Lift
Customer Requirements	Scale Ratio to 1.5		X		X	X
	Perfomance	X				X
	Durability	X				
	Flight Duration			X		
	Attachments		X	X		
	Units	psi	lb	ft-lb/s	in	lbf
		Engineering Targets				



# Future

- Begin to assemble critical subsystems
  - Power plant and rotor assemblies
  - Must be calibrated
- Build frame and get ready for integration of rotor assemblies
- Assemble all subsystems and test
- Recalibrate and fine-tune

# Recap

- Client and Requests – Dr. Raju wants scale helicopter.
- Need/Goal – Gave specific statements.
- Objectives – How the helicopter performs.
- Constraints – To increase the size, life, durability, and budget.
- QFD.
- Project planning - Gantt Chart.
- What's to come in the future.

# Reference

- [1] UDIRCTOYS INDUSTRY CO., 2012, “UDIR/C,”  
<http://www.udirc.com/eng/show.asp?id=49>

# Questions?