Home Health Monitoring System

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Abstract

A Home Health Monitoring System to encourage extensibility of monitoring devices in care-at-home applications.

A Home Health Monitoring System to encourage extensibility of monitoring devices in care-at-home applications.

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Introduction

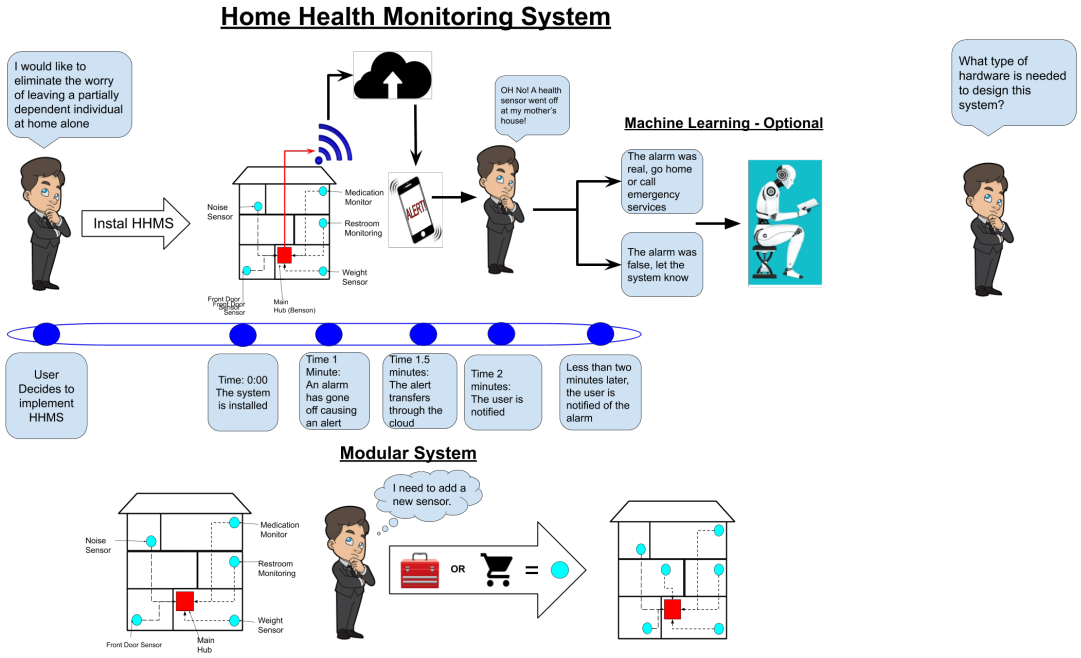


Figure 1: Top Level Diagram

Background

Project Description and Goals

Design Process

Methods

Decision Tables

The decision tables compile the research into the relevant specifications

								Input Types
Micro Controllers	Bluetooth	Wifi	USB 1.1	USB 2.0	USB 3.0	USB C	RS-232	HDMI Type A - Standard
Weights: 0-10; Values: Boolean	0	1	0	5	5	2	1	4
	Value:	Value:	Value:	Value:	Value:	Value:	Value:	Value:
Raspberry PI 4B 4GB	1	1	0	1	1	1	0	0
Raspberry PI 4B 8GB	1	1	0	1	1	1	0	0
Arduino NANO 33 IOT	1	1	0	1	0	0	0	0
Banana Pi M3	1	1	0	1	0	0	0	1
Odroid XU4	0	0	0	1	1	0	0	1
NanoPi NEO4	1	1	0	1	1	1	0	1
UDOO BOLT V8	1	1	0	0	1	1	0	1
UDOO X86 II ULTRA	1	1	0	0	1	0	0	1
ASUS Tinker Board	1	1	0	1	0	0	0	1
Onion Omega2+	0	1	0	1	0	0	0	0
Orange Pi 4B	1	1	0	1	1	0	0	1
NanoPC-T3 Plus	1	1	0	1	0	0	0	1
Le Potato - AML-S905X-CC	0	0	0	1	0	0	0	1
Orange Pi Zero Plus2	1	1	0	0	0	0	0	1
Raspberry Pi Zero W	1	1	0	1	0	0	0	0
Intel® NUC Board NUC7i3DNBE	1	1	0	1	1	0	0	1

Figure 2: Top Level Diagram

Microprocessors	Bluetooth	Wifi	USB 1.1	USB 2.0	USB 3.0	USB C	HDMI Type A - Standard	HDMI Type C - Mini
Weight: 0-10	10	7	1	5	5	2	1	4
Values: Boolean								
Raspberry PI 4B 4GB	1	1	0	1	1	1	0	0
Raspberry PI 4B 8GB	1	1	0	1	1	1	0	0
Arduino NANO 33 IOT	1	1	0	1	0	0	0	0
Banana Pi M3	1	1	0	1	0	0	0	1
Odroid XU4	0	0	0	1	1	0	0	1
NanoPi NEO4	1	1	0	1	1	1	0	1
UDOO BOLT V8	1	1	0	0	1	1	0	1
UDOO X86 II ULTRA	1	1	0	0	1	0	0	1
ASUS Tinker Board	1	1	0	1	0	0	0	1
Onion Omega2+	0	1	0	1	0	0	0	0
Orange Pi 4B	1	1	0	1	1	0	0	1
NanoPC-T3 Plus	1	1	0	1	0	0	0	1
Le Potato - AML-S905X-CC	0	0	0	1	0	0	0	1
Orange Pi Zero Plus2	1	1	0	0	0	0	0	1
Raspberry Pi Zero	1	1	0	1	0	0	0	1
Intel® NUC Board NUC7i3DNBE	1	1	0	1	1	0	1	0

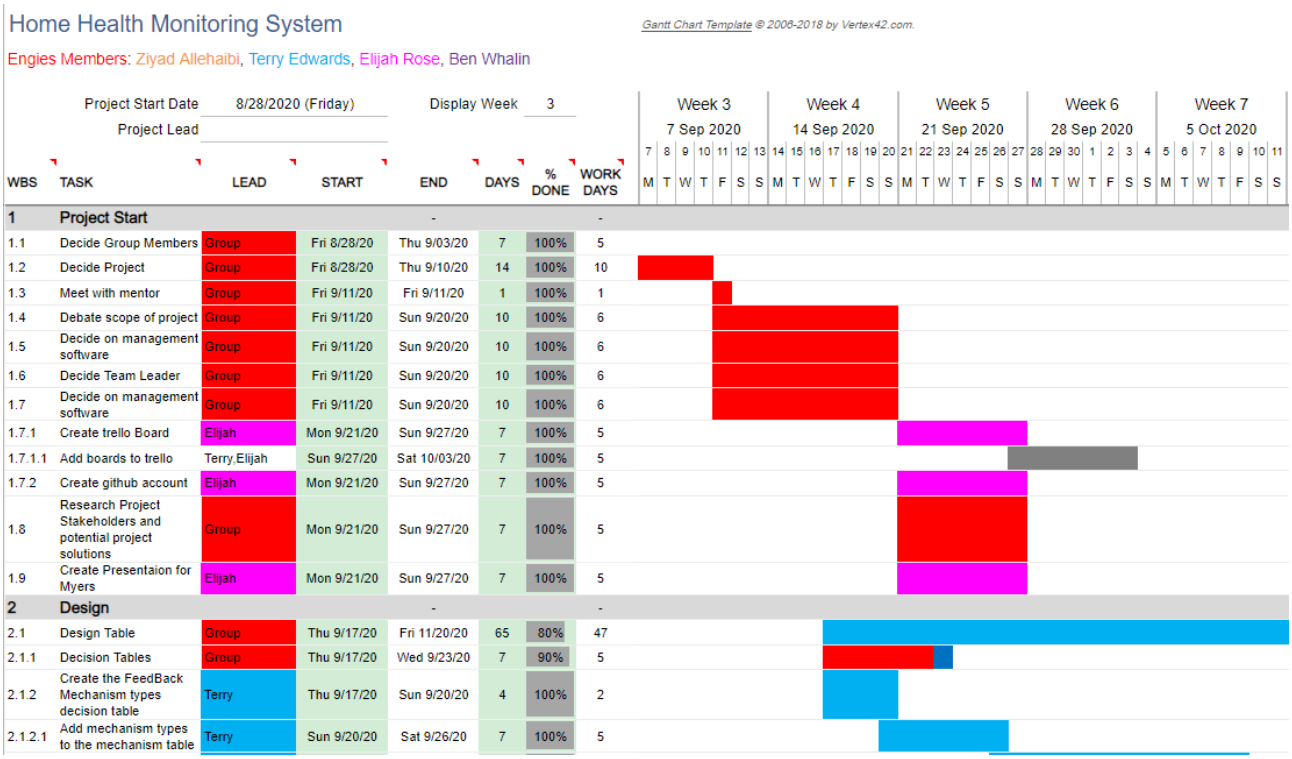
Figure 3: Top Level Diagram

Design Tables

Input Table

Output Table

Timeline



Home Health Monitoring System

Gantt Chart Template © 2006-2018 by Vertex42.com.

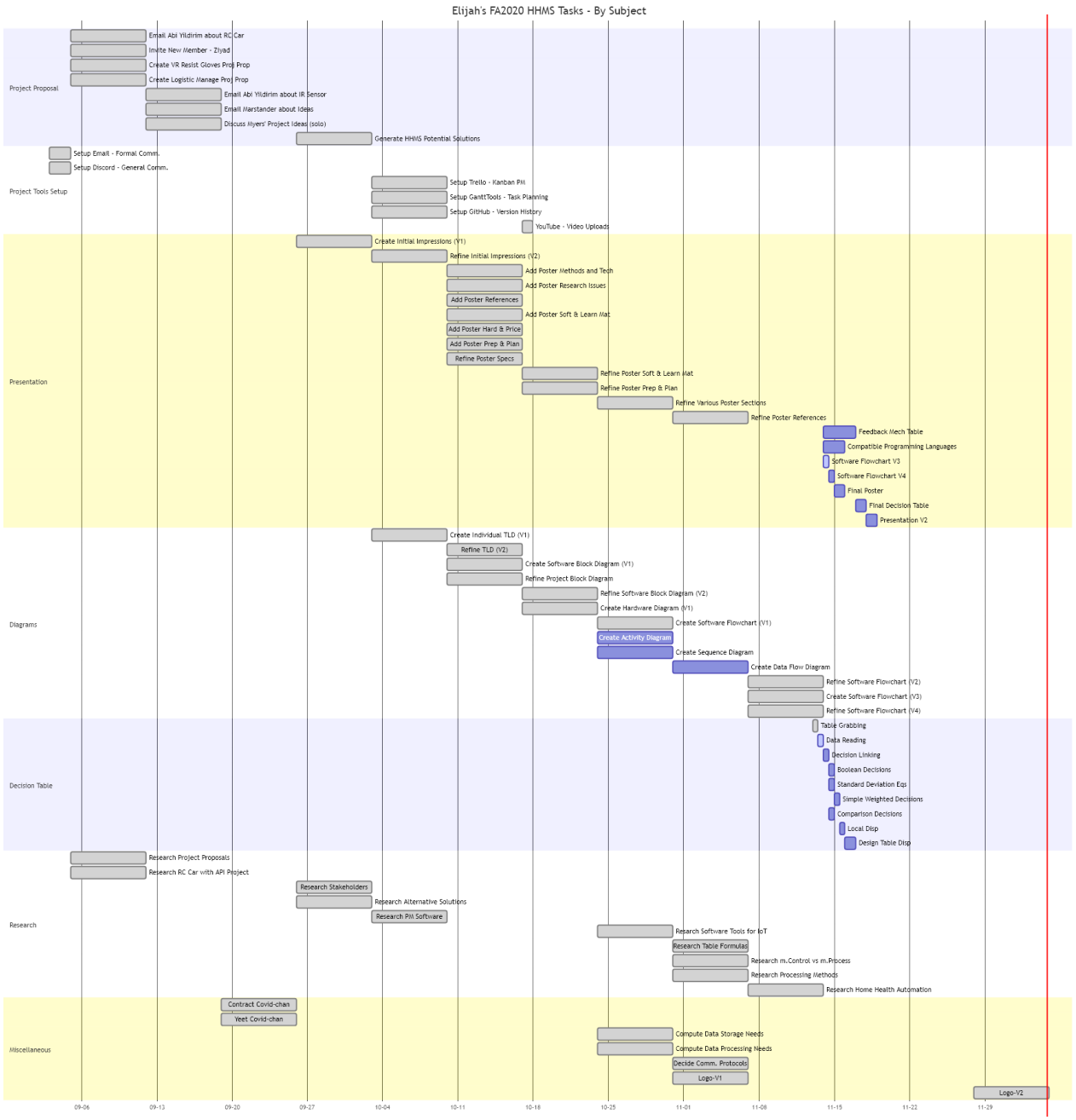
Engies Members: Ziyad Allehaibi, Terry Edwards, Elijah Rose, Ben Whalin

Project Start Date 8/28/2020 (Friday) Display Week 3

Project Lead

WBS	TASK	LEAD	START	END	DAYS	% DONE	WORK DAYS
1	Project Start			-			-
1.1	Decide Group Members	Group	Fri 8/28/20	Thu 9/03/20	7	100%	5
1.2	Decide Project	Group	Fri 8/28/20	Thu 9/10/20	14	100%	10
1.3	Meet with mentor	Group	Fri 9/11/20	Fri 9/11/20	1	100%	1
1.4	Debate scope of project	Group	Fri 9/11/20	Sun 9/20/20	10	100%	6
1.5	Decide on management software	Group	Fri 9/11/20	Sun 9/20/20	10	100%	6
1.6	Decide Team Leader	Group	Fri 9/11/20	Sun 9/20/20	10	100%	6
1.7	Decide on management software	Group	Fri 9/11/20	Sun 9/20/20	10	100%	6
1.7.1	Create trello Board	Elijah	Mon 9/21/20	Sun 9/27/20	7	100%	5
1.7.1.1	Add boards to trello	Terry,Elijah	Sun 9/27/20	Sat 10/03/20	7	100%	5
1.7.2	Create github account	Elijah	Mon 9/21/20	Sun 9/27/20	7	100%	5
1.8	Research Project Stakeholders and potential project solutions	Group	Mon 9/21/20	Sun 9/27/20	7	100%	5
1.9	Create Presentaion for Myers	Elijah	Mon 9/21/20	Sun 9/27/20	7	100%	5
2	Design			-			-
2.1	Design Table	Group	Thu 9/17/20	Fri 11/20/20	65	80%	47
2.1.1	Decision Tables	Group	Thu 9/17/20	Wed 9/23/20	7	90%	5
2.1.2	Create the FeedBack Mechanism types decision table	Terry	Thu 9/17/20	Sun 9/20/20	4	100%	2
2.1.2.1	Add mechanism types to the mechanism table	Terry	Sun 9/20/20	Sat 9/26/20	7	100%	5

Figure 4: Gantt Chart


Elijah's FA2020 HHMS Tasks - By Subject
Project Proposal
Email Abi Yildirim about RC Car
Invite New Member - Ziyad
Create VR Resist Gloves Proj Prop
Create Logistic Manage Proj Prop
Email Abi Yildirim about IR Sensor
Email Marstander about Ideas
Discuss Myers' Project Ideas (solo)
Generate HHMS Potential Solutions
Project Tools Setup
Setup Email - Formal Comm.
Setup Discord - General Comm.
Setup Trello - Kanban PM
Setup GanttTools - Task Planning
Setup GitHub - Version History
YouTube - Video Uploads
Presentation
Create Initial Impressions (V1)
Refine Initial Impressions (V2)
Add Poster Methods and Tech
Add Poster Research Issues
Add Poster References
Add Poster Soft & Learn Mat
Add Poster Hard & Price
Add Poster Prep & Plan
Refine Poster Specs
Refine Poster Soft & Learn Mat
Refine Poster Prep & Plan
Refine Various Poster Sections
Refine Poster References
Feedback Mech Table
Compatible Programming Languages
Software Flowchart V3
Software Flowchart V4
Final Poster
Final Decision Table
Presentation V2
Diagrams
Create Individual TLD (V1)
Refine TLD (V2)
Create Software Block Diagram (V1)
Refine Project Block Diagram
Refine Software Block Diagram (V2)
Create Hardware Diagram (V1)
Create Software Flowchart (V1)
Create Activity Diagram
Create Sequence Diagram
Create Data Flow Diagram
Refine Software Flowchart (V2)
Create Software Flowchart (V3)
Refine Software Flowchart (V4)
Decision Table
Table Grabbing
Data Reading
Decision Linking
Boolean Decisions
Standard Deviation Eqs
Simple Weighted Decisions
Comparison Decisions
Local Disp
Design Table Disp
Research
Research Project Proposals
Research RC Car with API Project
Research Stakeholders
Research Alternative Solutions
Research PM Software
Research Software Tools for IoT
Research Table Formulas
Research m.Control vs m.Process
Research Processing Methods
Research Home Health Automation
Miscellaneous
Contract Covid-chan
Yeet Covid-chan
Compute Data Storage Needs
Compute Data Processing Needs
Decide Comm. Protocols
Logo-V1
Logo-V2
09-06
09-13
09-20
09-27
10-04
10-11
10-18
10-25
11-01
11-08
11-15
11-22
11-29

System Design

Hardware Design

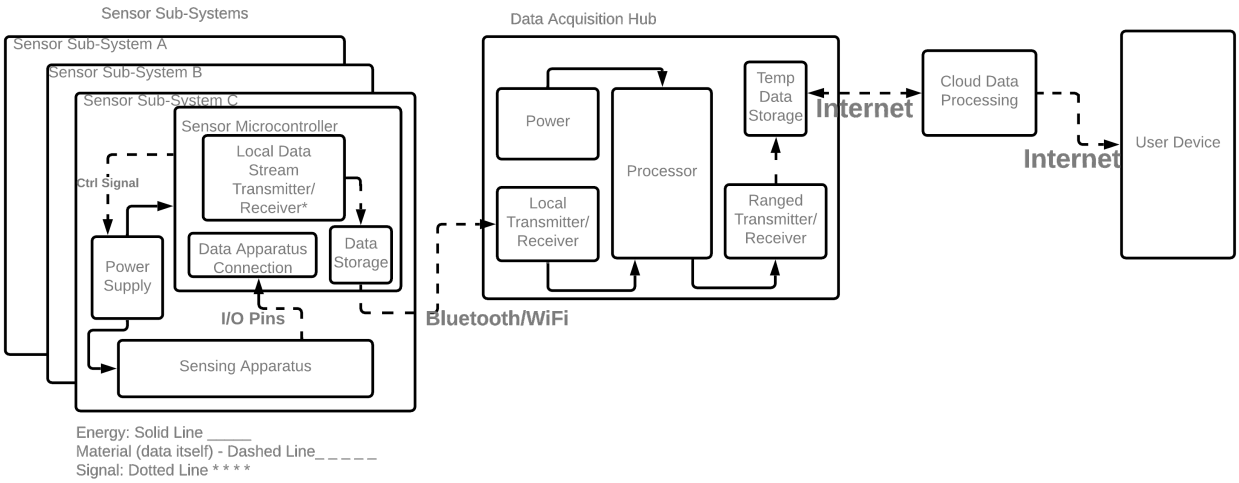


Figure 5: Hardware Block Diagram

Hardware Simulation

Software Design

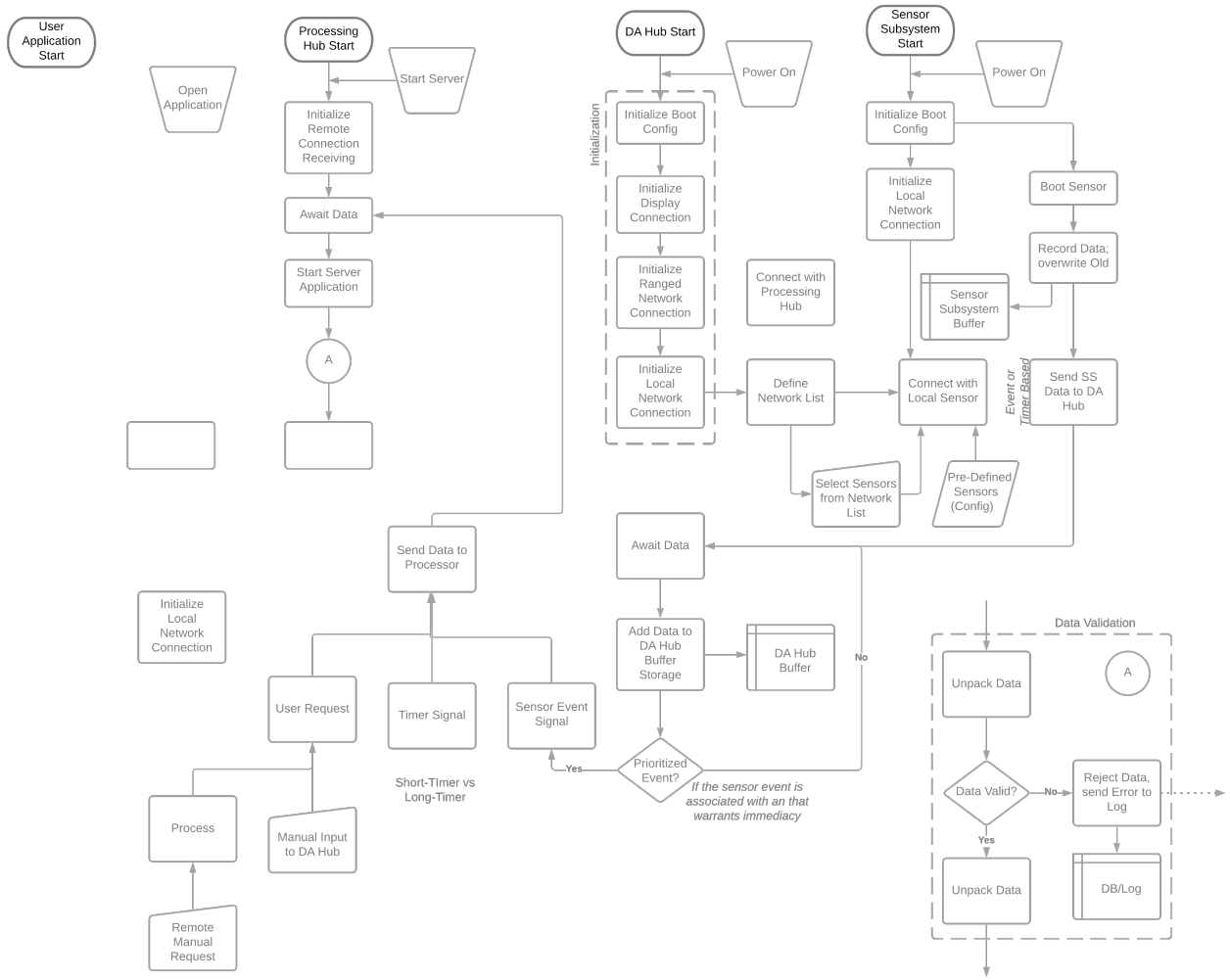


Figure 6: Software Flowchart

Software Simulation

Cost Analysis

Individual Tasks

Ziyad Allehaibi

Terry Edwards

Ben Whalin

Elijah Rose