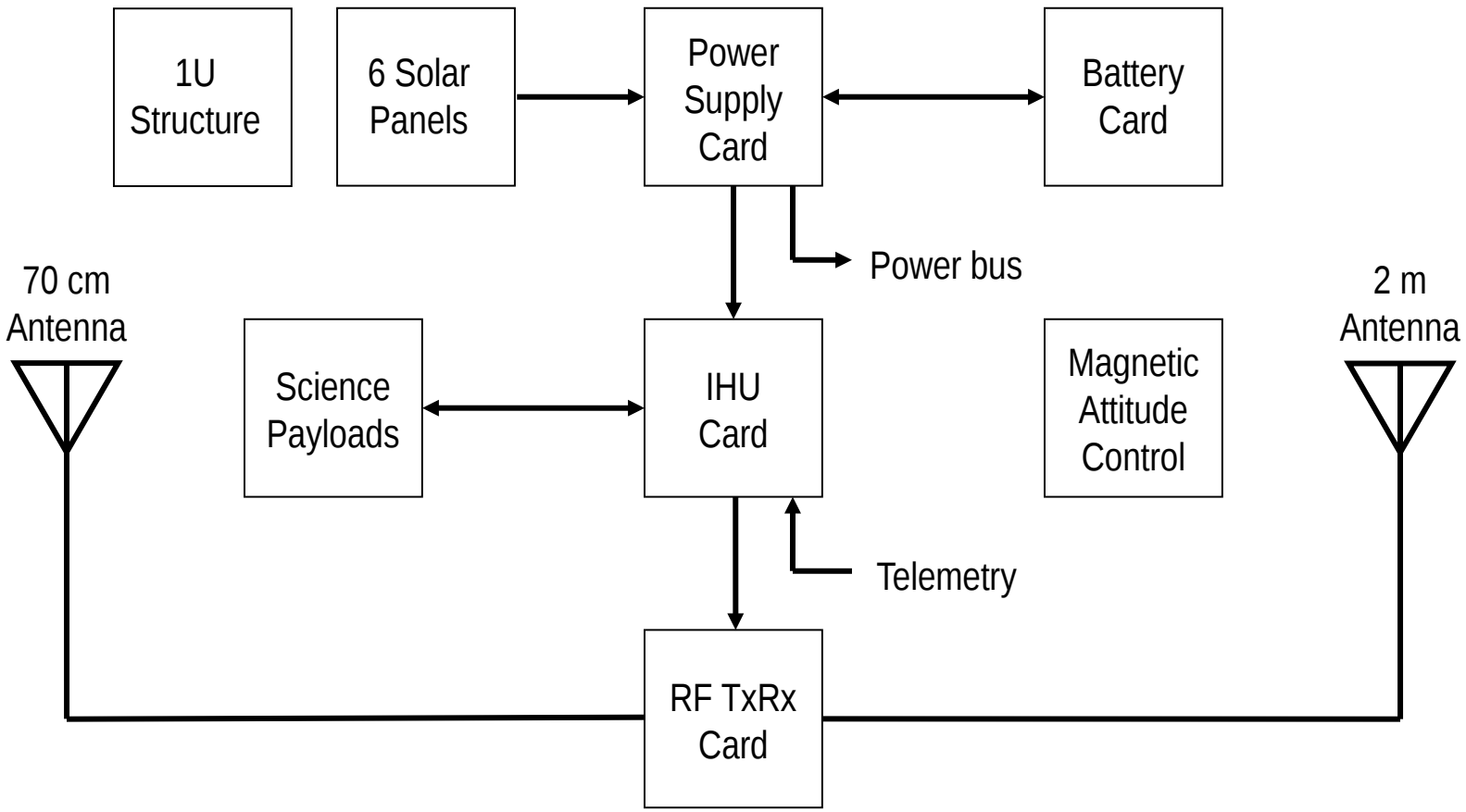

Fox-Plus A Block Diagram

a/o 7/13/2022

	Dev Sat
Flight Computer	Metzinger, Brandenburg
Flight Software	McCoy, Grill, Severrisson
Flight TxRx	Swiatkowski
Structure	Karnauskas, Wu, Aylouche
Power Supply & Batts	Moravec
Sensors (various)	
Ground System	
Reaction Wheels	Davis
Deployable Solar Panels	Risalvato

	Dev Sat
Power Budget	Moore
CONOPS/PSAM/SRS	Moore
Thermal Budget	
Link Budget	
Launch Integration	
Regulatory Approval	
Operations	
Vibration Test	
Thermal & Vacuum Test	
PACSAT	Reed, McCullers

Status Board

Assemble Interim RT-IHU Debug Boards

Remove existing 10-pin male connector, replace with 10-pin female connector

Design U/v FM Transponder

Design an analog U/v FM transponder using either novel design or based on simplifying Fox transceiver

Review / Assemble LTM Docs / BoM / PCB

Track down the existing LTM documentation, bill-of-materials, and PCB resources

Prototype Slow-Scan Transmitter

Prototype a slow-scan transmitter using an embedded platform

Job Jar

TNECSA

and

FOX+

What's Happening?

RT-IHU (Zach Metzinger)

- Objective
  - Develop RT-IHU
- Current Activity
  - Assemble V1.1 Development Boards
    - Result is 6 assembled V1.1 RT-IHU boards.

ASCENT PACSAT (Bill Reed)

- Objective
  - Develop digital packet communication payload
- Current Activity
  - Draft CONOPS
    - Result is a draft document for discussion. Document contains a high-level description of function, modes of operation and potentially a block diagram.

ASCENT PACSAT (Jim McCullers)

- Objective
  - Software
- Current Activity
  - Assemble AX5043 board for prototyping
    - Result is a AX5043 board connecting to a SBC, potentially a Raspberry Pi, and programmed with sample software.
  - Assemble RT-IHU Breakout Board
    - Result is two RT-IHU breakout boards

ASCENT Structure (Tom Karnauskas)

- Objective
  - Develop 3U space frame
- Current Activity
  - Identify previous work
    - Result is a list of existing models previously created by Bob Davis that are relevant to the Golf frame.
  - Ready for 3D Modeling software?
    - Should I have already bought Inventor?

Fox-Plus Structure (Thomas Wu)

- Objective
  - Fox-Plus Structure
- Current Activity
  - Assemble a survey of commercial 1U space frames that could contain the Fox-1 board size.
    - Result is a list of commercially available 1U space frames with a concept of how existing Fox-1 boards would be assembled in each.

Fox-Plus Systems Engineering (Mike Moore)

- Objective
  - Advance systems engineering tasks
- Current Activity
  - Draft Fox-Plus requirements specifications
    - Result is a draft SRS document, based on the Fox-1 SRSes, updated for the new modes expected on Fox-Plus.

Fox-Plus RF (Mike Swiatkowski)

- Objective
  - Develop radio-chip-based SDR
- Current Activity
  - Examining existing Fox FM RF boards for end-of-life parts
    - Result is a list of components that require replacement and potential replacements.

Fox-Plus Flight Software (Dave McCoy)

- Objective
  - Fox-Plus flight software
- Current Activity
  - ???

Fox-Plus Flight Software (Chris Grill)

- Objective
  - Fox-Plus flight software
- Current Activity
  - Identify Goals of Generalized LTM
    - Result is a list of desired changes in the LTM software better supporting the varying needs of different recipients.
  - RT-IHU Debug Cable
    - Result is a small board containing the debug circuitry and cabling for the TMS570

Fox-Plus Flight Software (Heimir Sverrisson)

- Objective
  - Fox-Plus flight software
- Current Activity
  - Flash Loader
    - Result is an updated flash loader to load the RT-IHU board

ASCENT Reaction Wheel (Tom Davis)

- Objective
  - Develop reaction wheels and motor control algorithms
- Current Activity
  - Assemble remaining motors
    - Result is five more motors (I think it's five)
  - Refine control algorithm
    - Result is an algorithm on a prototype board controlling the wheels in a simulated pointing scenario. Can it also detumble if necessary?

ASCENT Deployable Solar Panels (Vincent Risalvato)

- Objective
  - Develop deployable solar panels
- Current Activity
  - Design solar panel and hinge solution
    - Result is a model of solar panels and hinges that fit in the pockets of the currently envisioned 3U structure.
    - Are we ready to prototype real hardware? Any luck getting cells?

Modeling (Marwan Aylouche)

- Objective
  - Develop Fox-Plus Models
- Current Activity
  - Develop models of commercial 1U structures?
    - Working with Thomas Wu, result are models of candidate commercial structures with Fox-1 boards?