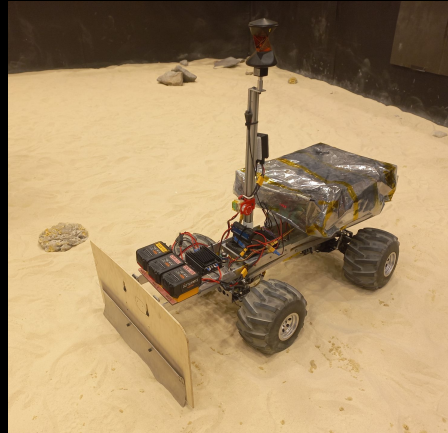




# Lunar ROADSTER

(Robotic Operator for Autonomous Development of  
Surface Trails and Exploration Routes)



*“Starting with a foothold on the Moon, we pave the way to the cosmos”*

# Amalgamation of Traditional and Agile PM

## Traditional PM:

- Well-defined requirements and a clear project scope.
- Structured schedule with milestones to meet deadlines.
- Tasks are assigned based on a planned workflow, with periodic check-ins to track progress and ensure alignment with project goals.
- Team members document their work thoroughly for transparency and tracking.
- Test plans and risk management studies are conducted to identify and mitigate potential issues.
- Budget and resources are carefully planned to ensure the project stays within budget.

## Agile PM:

- Early failure, quick adaptation, and rapid improvements.
- Sponsor and stakeholder inputs drive subsystem refinements for the best MVP.
- Individual ownership of tasks; linear organization
- Daily stand-ups and Kanban boards for progress and scheduling.
- Test-Driven Development ensures robust hardware and software reliability.
- Team members collaborate across disciplines as needed.

# Amalgamation of Traditional and Agile PM

## Why we chose amalgamation?

- Structured Planning with Adaptive Execution.
  - Clear objectives and well-defined requirements, with quick adaptation to changes in subsystems without changing the scope
- Risk Mitigation and Continuous Improvement
  - Predictive risk analysis and mitigation plans, with iterative approach for quick failure, fast learning and continuous enhancement
- Efficient Team Workflow
  - Traditional task allocation and ownership, with cross-functional collaboration and decentralized decision making
- Predictability and Adaptability
  - Predictive budgeting, scheduling and resource allocation, with allowing adjustments based on real-world testing and feedback

# Amalgamation of Traditional and Agile PM

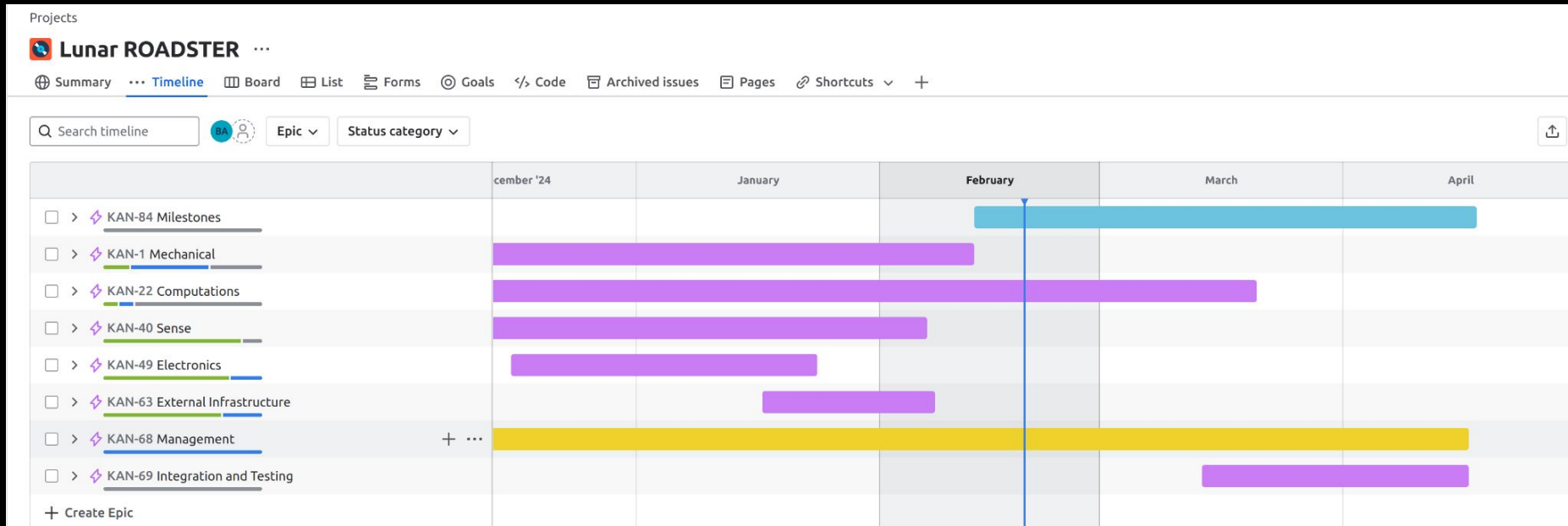
## Challenges of amalgamation

- Daily stand-ups improve collaboration, but if not kept concise and focused, they can become repetitive and time-consuming, reducing productivity.
- Agile allows frequent feedback, but balancing changes with a fixed timeline is challenging.
- Traditional PM requires detailed documentation, while Agile prioritizes speed. Finding the right balance is crucial.

# Project Management Methodology

## Jira - Managing Schedule

- Provides clear timeline view
- Gantt chart to track progress of each subsystem



# Project Management Methodology

## Notion - Documentation, Task Assignment & Meeting Notes

Lunar ROADSTER HQ | Engineering Wiki

Edited 2h ago | Share | Search

### Engineering Wiki

Home

#### Guides & Processes

88 Guides and Processes

- Getting Started
- ROS2
- Dozer Design
- Wheels
- Grader Design
- Localization
- Navigation
- Electronics
- Jetson Xavier
- Validation
- Common Knowledge
- Visual Odometry
- Planners and Control
- Operations Terminal
- Teleop
- Rover Bringup
- Moon Pit Crater Distribution
- Jetson TX2
- Micro-ROS
- TP-Link Router Setup
- FARO Laser Scanner
- MuJoCo

Grid of guides and processes:

- Common Knowledge
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- MuJoCo
- TF Transforms

+ New page

Lunar ROADSTER HQ | Tasks

#### Tasks

By Project | Board | All tasks | By assignee | Mine | Timeline

##### Electronics 5

Task name	Status	Assignee
Obtain and Understand CraterGra	In progress	Deepam America, Ankit, Simon D'Souza
Obtain Physical Rover	Done	
Design Excavator Assembly	Done	Deepam America, Simon D'Souza
Source Excavator Assembly	Done	Deepam America, Simon D'Souza
Manufacture Excavator Assembly	In progress	Deepam America, Ankit
Excavator Assembly - Design Iter	In progress	Deepam America, Ankit
Excavator Assembly - Manufactur	In progress	Deepam America, Ankit
Design Grader Assembly	Archived	Ankit
Source Grader Assembly	Archived	Ankit
Manufacture Grader Assembly	Archived	Ankit, Deepam America
Grader Assembly - Design Itera	Archived	Ankit, Deepam America
Grader Assembly - Manufacture It	Archived	Ankit, Deepam America
Source Wheel Assembly	Archived	Deepam America, Ankit
Modify Wheel Assembly	In progress	Ankit, Deepam America
Design and Manufacture Sensor	In progress	
Mechanical Assembly	In progress	Deepam America, Ankit
Mechanical Assembly Iterations &	Not started	Deepam America, Ankit
Quality Assurance	Not started	Deepam America, Ankit

+ New task

##### Computations 16

Task name	Status	Assignee
Setup Jetson Drivers	Done	Bhaswath Ayappa
Read 3D Map	In progress	Simon D'Souza
Teleoperation	Done	William, Bhaswath Ayappa
Localization - Sensor Fusion	In progress	Bhaswath Ayappa, William
FSM Planner	Not started	William, Ankit
Excavator Planner - Simulate	Not started	Ankit, Deepam America, William

# Project Management Methodology

## Notion - Documentation, Task Assignment & Meeting Notes

The screenshot displays a Notion workspace for 'Lunar ROADSTER HQ' with a 'Meetings' database. The database is organized into three columns: 'Team weekly', 'Presentation', and 'Standup'. The 'Team weekly' column lists several meetings, including 'Team Weekly @October 2, 2024' and 'Team Weekly @January 13, 2025'. The 'Presentation' column lists 'SYSMP02 Prep @October 23, 2024' and 'SYSMP02 Presentation @October 30, 2024'. The 'Standup' column lists 'ST1 @January 20, 2025'. A 'New meeting' button is visible at the bottom of each column.

The right panel shows a detailed view of a 'Team Weekly @November 22, 2024' meeting. It includes sections for 'Attendees', 'Event time', 'Type' (marked as 'Archived'), and 'Comments'. Below these are sections for 'Pre-read', 'Meeting Agenda', 'Meeting Notes', and 'Meeting Outcomes'.

**Pre-read**

- Docs
- Team updates & gut checks

**Meeting Agenda**

- ☒ Clarify presentation questions with Dimi
- ☒ Clarify schedule approach
- ☒ Finish WBS dictionary, if necessary
- ☐ Finish schedule
- ☒ Website updates
- ☒ List of hardware/software to purchase
- ☒ Send mail to get GIG workplace access
- ☐ Risk management

**Meeting Notes**

- List

**Meeting Outcomes**

- Got good feedback from Dimi
- Need to talk to CraterGrader asap
- Drafted task dictionary. Need to update on Jira
- Update WBS - iterations and refinement block was added, nav and tool planner blocks were modified, integrate subsystems block was modified
- Decided that everyone will come up with 5 risks each - with description and mitigation plan

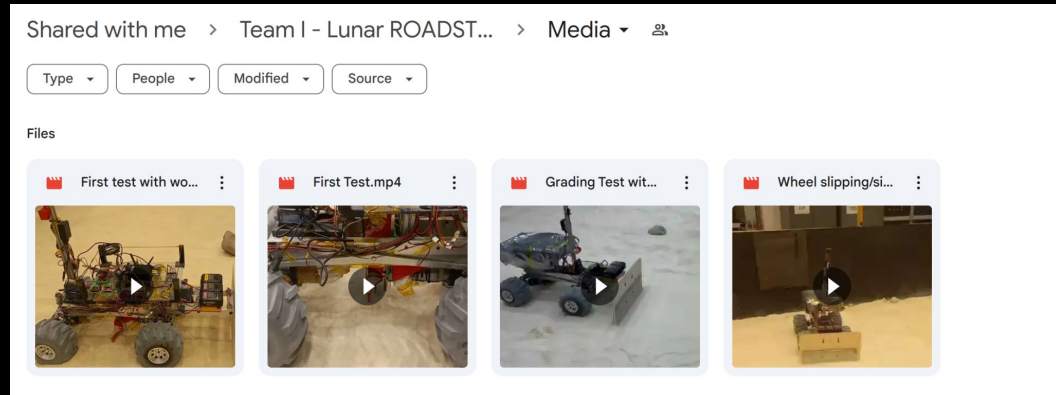
# Project Management Methodology



- Share important resources
- Hold virtual meetings
- Share test results and other relevant media



- Upload testing videos
- Upload project relevant documents

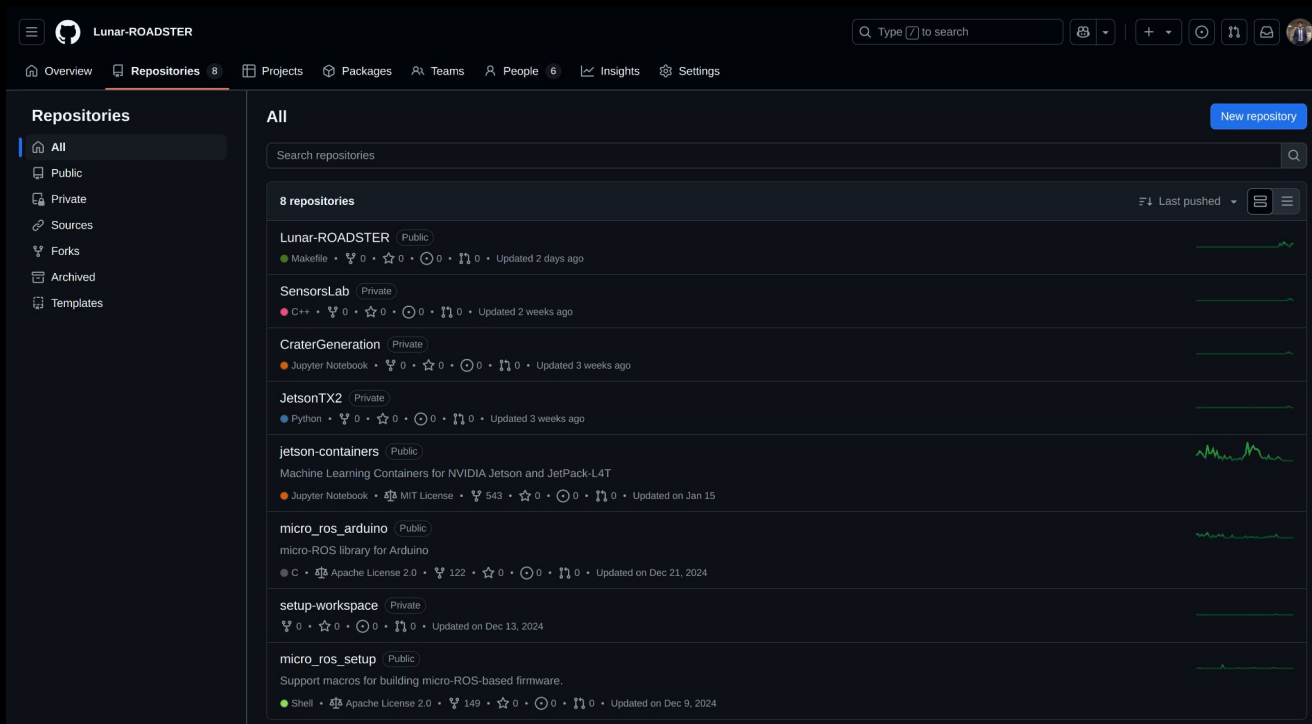




# Project Management Methodology

## Github -

- Version Control – Track changes & revert if needed
- Collaboration – Work together seamlessly



# What Might Be Done Differently?

## Better Schedule Tracking -

- Identification of risks
- Update issue log in timely manner

### Issues Log

10 ▾ entries per page

Search:

Issue ID	Date Initiated	Date Resolved	Participants	Description	Options	Resolution	Justification
I01	11/28/2024	12/04/2024	Team	Too many performance requirements for SVD.	Have revised performance requirements separately for SVD and FVD.	Revised performance requirements down to 6. Clearly defined SVD and FVD objective split.	Conducted meeting with Crater Grader team and discussed what is feasible and what is not in the given time.
I02	01/20/2025	01/27/2025	Boxiang Fu	Unable to login to TX2 chip.	Flash the chip and build docker container from scratch.	Found that chip was used by LunarX team. Got in contact and obtained login details.	No need to reinvent the wheel if not necessary.
I03	02/10/2025	02/14/2025	Ankit Aggarwal	Steering mechanism components failed due to wear-and-tear.	Replace broken parts.	Replaced all components of the assembly and fitted new screws and bolts.	Replaced old parts as a precaution for further failure due to wear-and-tear.

Showing 1 to 3 of 3 entries

# Stand-Up Meetings

- Daily Standups on Weekdays (5:30 - 5:45 PM)
- Weekly Meetings with Sponsor - Dr. William 'Red' Whittaker (Friday)
- Everyone is showing up :) (Sometimes members attend virtually)
- Questions being used:
  - What have you worked on since the last Standup?
  - What are you going to work on?
  - Is there any help you need? Does your work affect anyone else's ongoing work?
- Some key highlights where standup solved problems
  - Resource Reallocation to meet a deadline - Project Course Assignments, Internal Milestones
  - Re-assignment of member's tasks based on help needed
  - Bandwidth Management
  - Insights into technical work: Helping wherever a member is 'stuck'
  - Awareness of all ongoing work - makes us feel like we are 'working in a team', not in silos