

## ASSIGNMENT NUMBER: 01

Title :- Project Planning and Task Management with JIRA.  
Create a project plan schedule using JIRA Software.

Objective :- The objective of this project is to develop a structured project plan for a given task using JIRA. This plan will break down tasks, assign resources, define milestones and use project management tools like PERT and Gantt charts to effectively manage time, resources and dependencies. This assignment will cover the entire life cycle of this project management process, from task identification to baseline planning.

### Prerequisites :

Basic understanding of project management concepts, including task management, dependency handling, resource allocation and milestones.

Familiarity with JIRA software is also necessary for this assignment.

### Software Requirements :-

- JIRA for tracking task and project management.
- Microsoft Project (or similar) for creating Gantt charts and PERT analysis.
- Optional: Excel or similar software for task table creation

and analysis.

### Key concepts:-

- i) PERT (Program Evaluation & Review Technique):-  
Helps in estimating task duration and analyzing project timelines.
- ii) Gantt chart: A visual representation of the project timeline that outlines the start and end date for tasks, milestones and dependencies.

Steps to implement the Project Plan in JIRA:

#### 1) Project Name and Start/Finish Date:

- Name: Smart wristwatch for guard awareness monitoring
- Start Date: Sept 15, 2024.
- Finish Date: Dec 31, 2024.

#### 2) Identify and define Project Tasks:-

Task 1: Research and requirement gathering.

- Task 2: Design System architecture.
- Task 3: Hardware Development
- Task 4: Software Development
- Task 5: Testing & Quality Assurance.
- Task 6: Deployment & User Training.
- Task 7: Final Review and Documentation.

### ③ Define duration for each project Task:-

Task 1:	2 weeks	15 Sept 2024 - 29 Sept 2024
Task 2:	3 weeks	30 Sept 2024 - 20 Oct 2024
Task 3:	4 weeks	21 Oct 2024 - 19 Nov 2024
Task 4:	5 weeks	21 Oct 2024 - 26 Nov 2024
Task 5:	2 weeks	27 Nov 2024 - 11 Dec. 2024
Task 6:	1 week	12 Dec. 2024 - 19 Dec. 2024
Task 7:	1 week.	20 Dec. 2024 - 31 Dec. 2024

### ④ Define Milestones:-

- Milestone 1: Completion of Requirement gathering (End of Task 1).
- Milestone 2: ~~completion of Design~~ (End of Task 2).
- Milestone 3: completion of Hardware Development (End of Task 3).
- Milestone 4: software Ready for testing (End of Task 4).

\* Milestone 5: Testing completion (End of Tasks)

\* Milestone 6: Project Deployment (end of Task 6)

\* Milestone 7: Final Review (End of Task 7).

⑤ Define Dependencies b/w tasks:

- Task 2 depends on the completion of Task 1.
- Task 3 & Task 4 can run in parallel, but both depend upon Task 2.
- Task 5 depends upon the completion of task 4.
- Task 6 depends upon the completion of task 5.

⑥ Define Project calendar:

- The project will follow a standard workweek (Monday to Friday) from 9 A.M to 5 P.M.
- Holidays and weekends are non-working days.

⑦ Define project resources & specify resource type:

- Project Manager: Overseeing and coordinating tasks.
- Hardware Engineer: Responsible for hardware development.
- Software Engineer: Responsible for software development.
- QA Engineers: Responsible for testing.
- Trainer: User training during deployment.

#### ⑧ Assign resources to each task:

- Task 1: Project Manager, Hardware Engineer, Software Engineer.
- Task 2: ~~Project Manager, Hardware Engineer, Software engineer.~~
- Task 3: Hardware Engineer.
- Task 4: Software Engineer.
- Task 5: QA Engineer, Software Engineer.
- Task 6: Trainer.
- Task 7: Project Manager.

## 9. Baseline the project plan:

- After all tasks, durations and resources are defined in JIRA, baseline the plan to lock the initial schedule for future tracking.

## Tables & calculations:

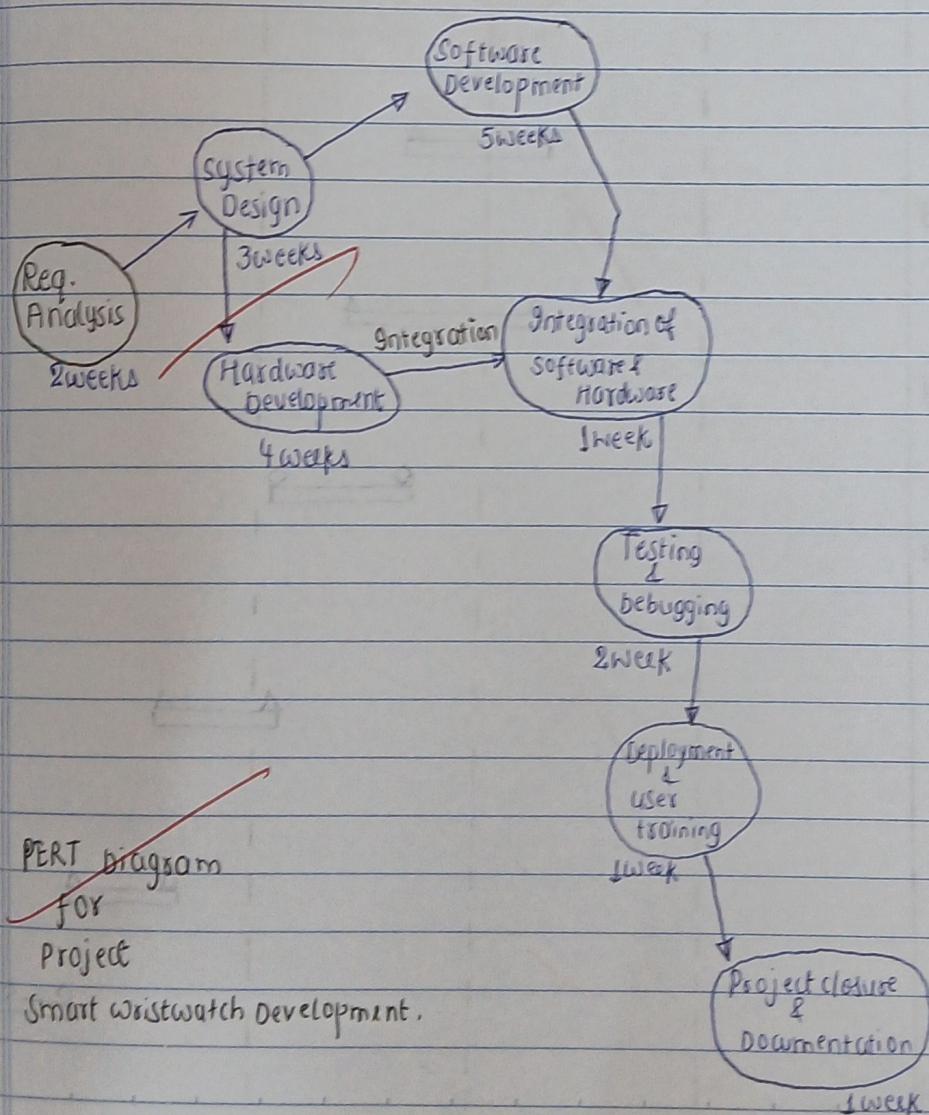
- Task Duration Table (Task Name, Start Date, End Date, Resource Assigned).

PERT Analysis for the task ::

Task:- Develop smartwristwatch for guard alertness monitoring.

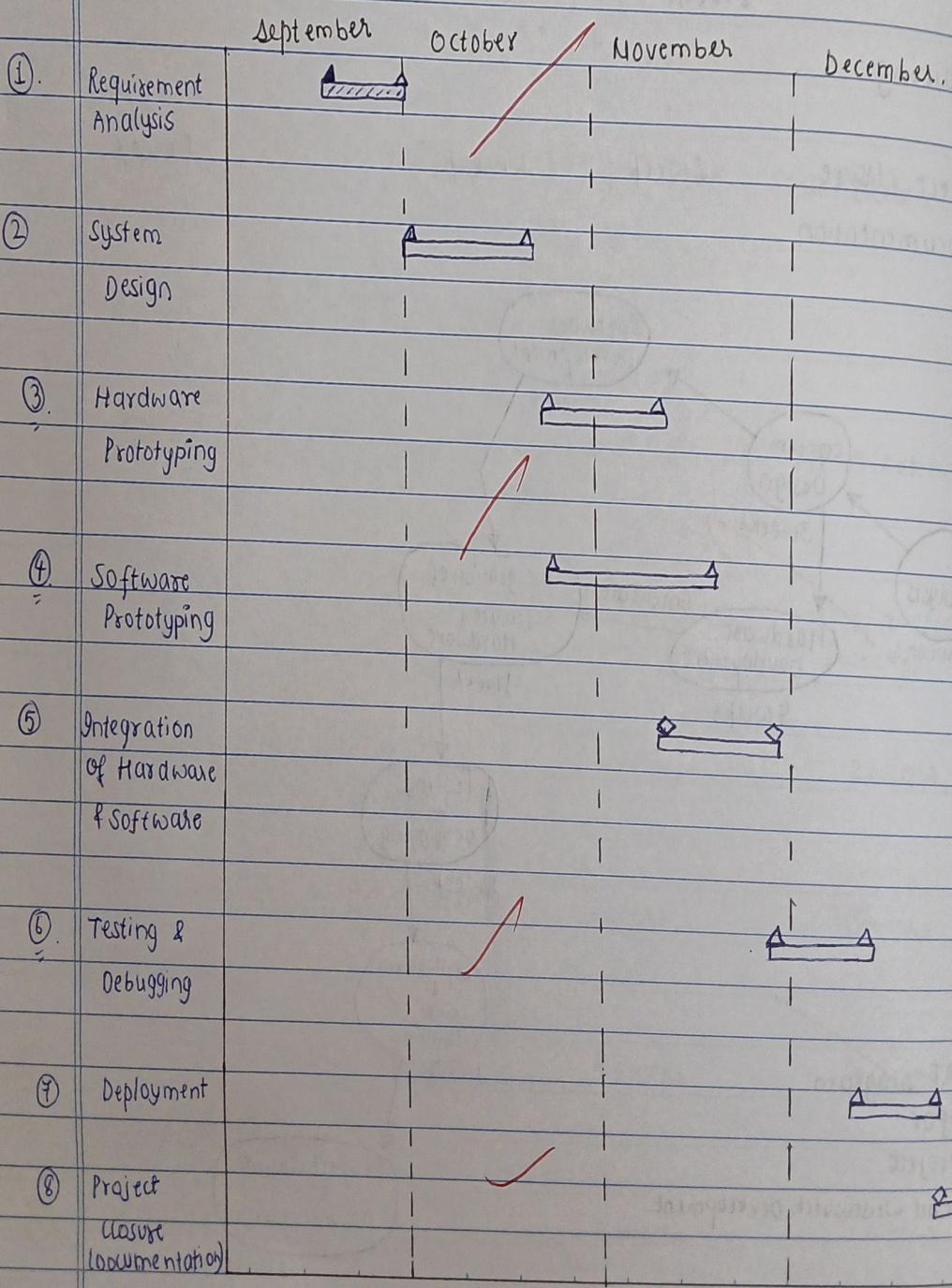
Task	Optimistic (weeks)	Most Likely (weeks)	Pessimistic (weeks)
Requirement Analysis	1 week	2 weeks	2 weeks
System Design	2 weeks	3 weeks	3 weeks
Hardware Development	3 weeks	5 weeks	4 weeks
Software Development	4 weeks	6 weeks	5 weeks

V	Testing & Debugging	2 weeks	2 weeks	2 weeks
VI	Deployment & User training	1 week	1 week	1 week
VII	Project closure & documentation	1 week	1 week	1 week



DO according to PERT Analysis the development (overall) team required a minimum of 14 weeks (around  $3\frac{1}{2}$  months).

Gantt chart for the project:-



Timeline (Months) →

Conclusion:- From the above assignment we learned to tackle the problem of how to use TORA software, how to create a project dashboard, plan the project & execute it by delving into the boot of a software manager, meanwhile we also learned about PERT Analysis & Gantt chart.

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## ASSIGNMENT NUMBER: 02

Title :- Execution and Monitoring of Project Plan using the JIRA software.

- Update % complete with current task status.
- Review the status of each task.
- compared planned v/s Actual status.
- Review the status of critical path.
- Review resources assignation status.

Objectives :- The objective of this assignment is to understand how to execute and monitor a project plan using JIRA software by uploading task statuses, reviewing the status of each task, compare planned vs actual status, reviewing the critical path, and monitoring resource allocation.

Prerequisites :-

① Basic understanding of project management concepts such as task scheduling, dependencies and the resource allocation.

② Prior experience in using JIRA for project tracking.

③ Installed and configured JIRA software with

access to a project dashboard.

### Software Requirements:-

- i) JIRA Software: For creating and tracking project tasks, creating Gantt charts and performing PERT analysis.
- ii) Microsoft Excel / Google sheets: - Optional for creating Gantt charts or tables.
- iii) PERT Analysis Tool: Optional, but JIRA can perform this analysis or external tools can be used for deeper insights.
- iv) Operating system: Windows / Linux / Mac OS.

### Theory:-

#### Project Execution and Monitoring :-

Project execution involves carrying out the project plan managing resources, and ensuring timely completion of tasks. Monitoring, on the other hand, ensures that the project stays on track by comparing the planned v/s actual progress. JIRA is a powerful tool for tracking issues, tasks, and overall project progress.

## Key concepts.

- i) % complete : A metric indicating the percentage of a task that is completed.
- ii) Critical Path : The longest sequence of tasks that must be completed on time for the project to be completed by its due date.
- iii) Planned vs Actual Status :- A comparison b/w what was planned and the actual progress to detect the variances.
- iv) Resource Assignment : Ensuring each task has the necessary resources and checking for over- or under-utilization of team members.

Let's take the example of Smart wristwatch used in

### Assignment 1 :

Example:

1) % complete :

Example :

- Task → Design watch UI.
- Planned duration : → 15 Sept 2024 - 25 Sept 2024 (10)
- Actual Progress : → By 20<sup>th</sup> Sept 2024, task is halfway done. (50%).

• % complete :- 50%

JIRA will reflect this % based on the progress the team reports for each task

## ② Critical Path :-

Example:-

- Task :-
  - 1) Design Hardware (15 Oct - 05 Nov. 2024)
  - 2) Design Software (15 Oct - 09 Nov. 2024)
  - 3) Integrate Sensors (10 Nov. - 15 Nov. 2024)  
Hardware & software

If any of these steps get delayed the entire project will get delayed.

## ③ Planned vs Actual status :

Example:-

i) Planned : Software was supposed to take place from (15 Oct 2024 - 09 Nov. 2024).

ii) Actual : Due to some issue with hardware, the software design started on 20 Oct 2024 & ended on 15 Nov. 2024.

iii) The delay can be seen in JIRA when comparing

the planned dates with the actual completion dates.

→ A burndown chart in JIRA software will give us a visual representation of planned vs actual progress, helping you track delays and track corrective actions.

#### 4) Resource Assignment :-

Example:- i) Sumit is assigned to work on watch UI  
ii) Nitin is assigned to work on hardware development alongwith Parthib.  
iii) Prabhat is assigned to work on research & development team ~~for~~ this project & project closure & documentation.  
iv) Gourav is assigned to work on software development team.  
v) Parthib is assigned for integration of software & hard ware integration.

Steps Applied to ~~smart~~ wristwatch Project.

① Create a project plan in JIRA.

- Set up task like Design UI, Develop firmware, Integrate sensors, testing & debugging, deployment in JIRA.
- Assign start & end dates for each task.

### (3) Update / complete :-

- i) As tasks progress, regularly update the % complete in JIRA.
- ii) If the develop firmware task (planned from 15 Oct - 09 Nov 2024), is halfway done by 30 Oct. 2024, you would mark it as 50% complete

### (4) Review Task status :-

- i) continuously monitor the status of each task.
- ii) If the sensor integration task (scheduled from 10 Nov - 19 Nov. 2024) is delayed, you will see it in JIRA & can take preventive measures

### (5) compare planned vs actual :-

- i) As project proceeds, compare planned timelines against actual timelines.
- ii) For example:- if testing was supposed to take place from (27 Nov. 2024 - 11 Dec. 2024) but started late JIRA will reflect it in the timeline & burndown chart

### (6) Review critical Path :-

- i) Critical path for the project is: Develop firmware & integrate sensors are on the critical path. You'll need to ensure these are completed on time to avoid

pushing back to overall project.

## ⑥ Resource Assignment :-

- ① Use JIRA's resource management features to assign team members to each task & check for over-or under utilization - allocation.
- ② If Prabhat is assigned to work on [R&D] and [project] & [closure] [documentation] is high then you need to assign the additional resources.

### Tables and calculation:

Task status table example for Smart wristwatch Project.

Task Id	Task Name	Planned Start	Planned End	Actual Start	Actual End	% complete	Status
1.	Design watch UI	15 Sept. 2024	25 Sept. 2024	15 Sept. 2024	25 Sept. 2024	100%	Done.
2.	Develop Firmware	15 Oct. 2024	09 Nov. 2024	20 Oct. 2024	12 Nov. 2024	100%	Done (Delayed)
3.	Integrate	11 Nov. 2024	18 Nov. 2024	12 Nov. 2024	18 Nov. 2024	100%	Done.
4.	Battery optimization	19 Nov. 2024	26 Nov. 2024	19 Nov. 2024	28 Nov. 2024	100%	Done (slight Delay)

Task id	Resource Name	Task Name	Planned days	Actual days	Utilization
1.	Research & framework by Prabhat	Research & framework	1 week	4 days	166%.
2.	Sumit	System Design	2 weeks	3½ weeks	90%.
3.	Jitin & Parthib	Hardware Development	4 weeks	4½ weeks	92%.
4.	Gourav & Nabajit	Software Development	5 weeks	4½ weeks	112%.
5.	Integration by Nabajit	Hardware & Software integration	1 week	1 week	100%.
6.	Prabhat & Gourav	Testing & debugging	2 weeks	1½ weeks	125%.
7.	Gourav	Deployment	1 week	1 week	100%.
8	Prabhat	Project closure & Documentation	1 week	4 days + 1 day = 5 days	125%.

PERT Analysis:-

Example:- For software development by Gourav & Nabajit.

- Optimistic time (O): 4 weeks
- Pessimistic time (P): 6 weeks
- Most likely time (M): 5 weeks

$$TE = \frac{O + 4(M) + P}{6} = \frac{4 + 5(4) + 6}{6} = \frac{30}{6}$$

TE = 5 weeks

for overall project.

- Optimistic time:- 13 weeks
- Pessimistic time:- 17 weeks
- Most likely time:- 15 weeks.

$$TE = \frac{O + 4(M) + P}{6} = \frac{13 + (15)4 + 17}{6}$$

= 15 weeks,  $\approx 3\frac{1}{2}$  months.

Conclusion :- using this assignment we know more in depth knowledge of JIRA software, how to find utilization, resource allocation, execution and monitoring of a project plan.

✓ ~~Done~~

## Assignment Number: 03

Aim: → Generate Dashboard and Reports

- Dashboard

- Project overview
- Cost overview
- Upcoming Tasks

- Resource Reports

- Over allocated resources
- Resource overview
- ◻ Cost Reports.
- Earned value Reports
- Task cost overview

- ◻ Progress Reports.

- Critical tasks.
- Milestone Report.
- Slipping Tasks.

Objective:- To generate various project dashboards like project overview, cost overview, upcoming task & reports (Resource Reports, cost reports, progress reports). To get to know about how to manage resources, track process & progress of project using the agile JIRA software tool.

Prerequisites:- ① Basic understanding of project management concepts such as generating dashboard (project), task scheduling, dependencies & resource allocation.

- ② Prior experience in using JIRA for project tracking & management experience of project.
- ③ Knowledge of key project management metrics like earned value, critical path & resource allocation.
- ④ Installed & configured JIRA software with access to a project dashboard.

### Software Requirement :-

- i) JIRA software : For creating & tracking project tasks, creating Gantt chart and performing PERT analysis.
- ii) Excel | Google Sheets (Optional) : For further analysis of exported reports.
- iii) Operating System : Windows / Linux / Mac OS.

### Theory :-

A dashboard & reports in project management provide an overview and detailed insights into the

project's status, helping project managers and stakeholders track progress, identify issues and make informed decisions.

Let's understand the concept using a project named Smart wristwatch.

- Project overview:-

This section displays a high-level summary of project's current progress:

- Tasks: How many tasks are divided for the project, assigned to whom & the progress or overdue of tasks, KPI's (Key performance indicators).

- % complete: Overall progress of the project based on task completion.

(Eg): from smart wrist watch project.

- i) Total task: 25
- ii) Completed: 10
- iii) In progress: 8
- iv) Overdue: 3
- v) % complete: 65%

- Cost overview:-

The cost overview summarizes project's financial

health by comparing planned cost against actual spending.

- Total project cost (budget) vs actual cost to date
- Cost variances and budget allocation for different tasks or phases.

(Eg.) i) Budgeted cost: \$100,000

= ii) Actual cost to date: \$70,000

iii) Remaining budget: \$30,000

#### • Upcoming Tasks :-

This section provides an overview of tasks that are scheduled to start soon. Keeping track of these ensures that team is prepared for upcoming task/work.

(Eg.) :- Upcoming task:-

①. Integration of sensors :- 10 Nov. 2024 to (hardware & software) 15 Nov. 2024

② Test Battery life:- 1 Dec. 2024 - 10 Dec. 2024

③. Final Deployment & testing :- 15 Dec. 2024 - 23 Dec. 2024

## Resource Reports:-

The reports focus on the allocation & utilization of project resources (team members, equipments, etc.).

Managing resources effectively is a key to ensuring timely project completion without overburdening team members. JIRA provides various resource reports.

### Over-allocated resource :-

This report identifies team members who have been assigned more work than they can handle within the given time frame. Over-allocating resources can lead to delays and reduced quality of work.

(Eg.)

= Project's Research & Development and project's testing closure and documentation is assigned to Prabhat resulting in 120% workload utilization.

### Resource Overview:-

This report shows the current assignment status of all team members, indicating how many hours or tasks they are assigned to, and whether they are overloaded, underutilized,

or optimally allocated.

(Eg) for smart wristwatch.

- Gourav: Assigned 7½ weeks, Actual work: 9 weeks  
(over-allocated)
- Prabhat: Assigned 4½ weeks, Actual work: 5 weeks  
(over-allocated)
- Parthib: Assigned 4 weeks, Actual work: 3 weeks  
(under-utilized).

③ Cost reports:-

~~cost reports give a detailed breakdown of how the budget is going to be allocated how much budget is required for each phases and many more.~~

i) ~~Earned value reports~~:

The EVR (Earned value report) helps to track project performance by comparing the amount of work completed to the budget spent.

key metrics include:

① planned value (PV): Expected cost up to a specific point  
(e.g. 70% complete by 31 NOV. 2024) = \$ 70,000

② earned value (EV): value of actually work completed  
(e.g. 65% complete = \$ 65000 worth of work done).

③ cost variance (CV): the difference b/w earned value  
and actual cost (e.g. -PV + EV) = \$ 65000 - \$ 70000  
= - \$ 5000.

This project report helps us understand if project is  
running on correct track from cost perspective.

#### Resource cost overview :-

This report gives detailed overview of resource-specific costs, breaking down how much each resource (team member) has cost the project based upon their hours worked.

Ex. i) Prabhat: worked 60 hours @ \$50/hr = \$ 3000  
ii) Gourav: worked 90 hours @ 60\$/hr = \$ 5400

iii) Parthib: worked 28 hours @ \$40/hr = \$ 1120  
iv) Nitin worked 30 hours @ \$45/hr = \$ 1350

etc. etc.

## Task cost overview:

This report provides a breakdown of the costs associated with each task.

(Ex).

### Task: firmware development

- Budgeted cost: \$5,000
- Actual cost: \$6,000
- Overshoot: \$1,000

## ④. Progress Reports:-

Progress reports monitor the status of tasks, identifying delays, critical paths, and upcoming milestones.

## Critical Task:-

The critical tasks report lists tasks that are on critical path, meaning any delays in these tasks will directly affect the project's overall timeline. These are high priority tasks that must be completed on time.

(Ex):- Task 1: Firmware development (15 Oct 2024 - 09 Nov 2024). Any delay here will push delay in the integration of sensors further.

Task 2: Hardware Testing (10 Dec. 2024 - 18 Dec. 2024):  
must be completed before final testing phase  
and deployment of final product that is  
to be launched in market.

### Milestone Reports:

A milestone report helps monitor the achievement of key project milestones. It displays upcoming milestones and whether they have been achieved on time.

(Eg):

Milestone: UI Design complete (15 Oct. 2024) - Achieved.

Milestone: Firmware Integration complete (09 Nov. 2024)  
~~Delayed.~~

### Slipping Tasks:-

Slipping tasks are those that are falling behind the schedule. Monitoring these tasks can help avoid further delays by reallocating resources or adjusting timelines.

(Eg). Task:

Battery Optimization:

- Planned End Date: 10<sup>th</sup> Dec. 2024.
- Actual End Date: 14<sup>th</sup> Dec. 2024.
- Status: Slipped by 4 days.

### Tables & Calculations :-

#### 1. Earned value report table example :-

Metric	Value	Formula
Planned value (PV)	\$70000	70% of total budget i.e (\$100,000)
Earned value (EV)	\$65,000	65% of total project completion
Actual cost (AC)	\$70,000	Total cost incurred till date
Cost variance (CV)	-\$5000	$CV = EV - AC$ (\$65,000 - \$70,000)

#### Resource overview table example :-

Resource name	Assigned Task	Hours Assigned	Actual Worked (hrs.)	Status
Prabhat	R&D and Documentation	60	65	Over-allocated

Purnib	Hardware Development	28	25	Underutilized
Gourav	Software development & debugging	90	98	Over-allocated
Nabajit	System Design	36	30	Underutilized
Nitin	Hardware development	28	25	Underutilized

### 3. Task cost overview table example:

Task Name	Planned cost	Actual cost	cost variance.
Firmware Development	\$ 5000	\$ 6000	-\$ 1000
UI Design	\$ 4,000	\$ 3500	+\$ 500

Conclusion :- Generating comprehensive dashboards & reports using JIRA software allows you to have real-time visibility into the smart wristwatch

Q&A

project. By tracking project progress, resource allocation, cost and milestones, you can ensure the project is completed on time & within budget. Reports such as Earned Value Reports and Resource Allocation Report help provide actionable insights, enabling better decision-making and resource optimization throughout project lifecycle.

Onwards