Space Monitor

Alexey Tukalo,
Computer Service Management,
Institute of technology Tralee

April 30, 2016

Contents

1 Scope Statement **2**

2 Risk Register **4**

3 Communication Plan **5**

4 Work time Exceptions **6**

5 Probability/Impact Matrix **7**

6 WBS **7**

7 Milestones **9**

8 Appendix **10**
8.1 Milestones . . . 10
8.2 Cost overview . . . 11
8.3 Earned Value over time . . . 12
8.4 Milestones Report . . . 13
8.5 Resource overview . . . 14
8.6 Delay in project schedule . . . 15
8.7 Top level tasks . . . 15
8.8 Project overview . . . 16
8.9 Resource cost overview . . . 17
8.10 Task cost overview . . . 18
8.11 Work Overview . . . 19

1 Scope Statement

Project Title: Space monitor
Date: April 30, 2016 Prepared by: April 27, 2015

Project Justification:
The aim is to develop project with complex network architecture, the project should contain microcontroller which communicates with server over internet and the webpage which demonstrate the sensors work in visual way. The project have to follow philosophy of internet of things.

Product Characteristics and Requirements:

1. The microcontroller have to:
   (a) transmit data over internet to the server
   (b) read data from Ultrosonic sensor
2. The server have to:
   (a) received data from microcontroller
   (b) keep data in the database
   (c) provide RESTfull API for webpage
   (d) be based on IBM BlueMix
3. The webpage have to:
   (a) be implement fluid-design
   (b) contain:
      i. legend
      ii. two donut chart
      iii. bar chart
      iv. plot
   (c) receive data from RESTfull API

Summary of Project Deliverables

Project management-related deliverables: the following documentation and any other documents required to manage the project.

1. Scope statement
2. WBS
3. Network diagram and critical path
4. Risk register and probability impact matrix
5. Communication plan
6. Cost baseline
7. Team contract
8. Project completion report

Product-related deliverables:

1. A project meeting the agreed specification
2. A design document detailing the project architecture
3. All software code
4. Final presentation

Non Project Deliverables

1. No guarantee of increased revenue for the project
2. The ongoing site maintenance following the completion of the project
3. The website hosting and hosting contract
4. The website launch

Project Success Criteria:

1. The project will be completion within 3 months.
2. All HTML and CSS to validate to W3C standards.
3. The project will be fully functional

4. The product will follow Product Characteristics and Requirements

Assumptions:
The project team will consist of a Sponsor(University) and Project Manager/Programmer(Alexey Tukalo) and Programmers(Gatan M., Florian Henriet).

2 Risk Register

No	Risk	Description	Rank	Affected Areas	Probability	Impact	Owner	Potential Responses
1	Loss of funding	Loss of funding for hardware	Medium	Scope, Schedule	Low	Low	U	Use hardware already available at University
2	Teammate illness	Teammate is sick and not able to work	Medium	Schedule	Medium	Medium	T	Reallocate tasks of the sick teammate between other developers
3	Hardware problems	Hardware problems during development	High	Scope, Schedule, Cost	High	Low	T	Troubleshoot the device, repair or buy new
4	BlueMix failure	BlueMix Cloud is unavailable for some reason	High	Scope, Quality, Schedule, Cost	Low	High	B	Move server to other cloud or build own server
5	Aliens attack	Civilisation from far space captured control under the Earth	High	Scope, Quality, Schedule, Cost	Low	High	A	Join partisan detachments resistance, stop developing, the product is useless in case of Galactic war

Prepared by: Alexey Tukalo Date: April 30, 2016

Owners:

U	University	Project sponsor
T	Team	Project team
B	IBM BlueMix	Supplier
A	Aliens	Aliens from far space

3 Communication Plan

Date: April 30, 2016 Prepared by: Alexey Tukalo

Method	Purpose	Responsibility	Audience	Frequency	Deliverable
Meeting	Get project requirements, ask question about unclear statements	Supervisor	Supervisor, Dev Team	Once off	List of the project requirements
Meeting(brainstorm)	Create the idea of the project in accordance with the specification	Project Manager	Dev Team	Once off	Concept of the project
Meeting	Discuss the project concept with supervisor, get advices and permission	Project Manager	Supervisor, Dev Team	Once off	Permission for a future development of the concept
Meeting	Reconcile the scope statement of the project with supervisor	Project Manager	Supervisor, Dev Team	Once off	Permission to start actual development of the system
Meeting (brainstorm)	Develop an architecture of the system	Project Manager	Dev Team	Once off	Plan of the system architecture
Meeting (brainstorm)	Identify the technological implementation of the architecture	Project Manager	Dev Team	Once off	Technical plan of the project
Meeting (brainstorm)	Identify the details of data transmission in the system	Project Manager	Dev Team	Once off	Format of the JSON object
Meeting	Spread the project into independent parts with equal scope and spread the roles between developers	Project Manager	Dev Team	Once off	Reconcile roles in the Dev Team
Meeting	Set deadlines, identify steps of the project development	Project Manager	Dev Team	Once off	Plan of the development (Gantt chart)
Meeting	Create a list of hardware for project implementation	Project Manager	Dev Team	Once off	Resource list
Meeting	Demonstrate results to the supervisor	Project Manager	Supervisor, Dev Team	Once off	Feedback from the supervisor
Presentation	Present project in University	Project Manager	Supervisor, Dev Team, other students and teacher	Once off	Feedback from the focus group
Skype conversation	Discuss particular development process and problems with teammates	All team member	Dev Team	any time	Exchange opinions with other teammate about particular problems, share results
Meeting	Discuss particular development process with supervisor	Project Manager	Supervisor, Dev Team	Weekly	Progress reports

Documents:

List of the project requirements: list of requirements to the project from supervisor

Concept of the project: detailed an explanation of the general idea behind the project.

Plan of the system architecture: an abstract plan of the project's software and hardware implementations and a network diagram.

Technical plan of the project: detailed plan of the project's software and hardware implementation.

Format of the JSON object: example of the JSON object used to transmit data between components of the system.

Plan of the development: Gantt chart with steps of development, responsible people and deadlines.

Resource list: list of hardware resources required for realisation of the project prototype.

Progress report: the Project Manager will maintain a record of project work and will record decisions made, along with budgetary and timeline monitoring.

4 Work time Exceptions

Florian

1	Business trip	01.4.2015	07.4.2015
2	Fishing	18.4.2015	19.4.2015

Geaten

1	Attending conference	11.4.2015	13.4.2015

Alex

1	Stolen by aliens	24.4.2015	27.4.2015
2	Attending conference	1.5.2015	3.5.2015

5 Probability/Impact Matrix

Probability

high	Hardware problems	-	-
medium	-	Teammate illness	-
low	Loss of funding	-	BlueMix failure, Aliens attack
-	low	medium	high

Impact

6 WBS

1. Idea creation
    1.1 Get requirements
    1.2 Create concept (brainstorm)

- 1.3 Reconcile the project the concept with supervisor
- 1.4 Reconcile scope statement
- 1.5 Prepare abstract
- 1.6 Consept is ready

2. Planning

- 2.1 Develop the architecture of system
- 2.2 Identify the technologies
- 2.3 Identify the details of data transmission
- 2.4 Separate roles between team members
- 2.5 Set deadlines for development
- 2.6 Create resource list
- 2.7 Create reasource list
- 2.8 Order hardware
- 2.9 Plan is ready

3. Development

- 3.1 Webpage
  - 3.11 Create design
  - 3.12 Parse data
  - 3.13 Create layout
  - 3.14 Create donut charts
  - 3.15 Create bar chart
  - 3.16 Create plot
  - 3.17 Add legend
  - 3.18 Add tooltips
- 3.2 Server
  - 3.21 Install MongoDB
  - 3.22 Set connection to IoT
  - 3.23 Create server logic at Node-red
  - 3.24 Turn on API for Web Page
- 3.3 Sensor
  - 3.31 Install driver and set IDE
  - 3.32 Stick together hardware

3.33 Read data from the sensor
3.34 Send data to the server

3.4 Integration of the system

3.41 Test system together
3.42 Fix problems
3.43 System is integrated

4. Testing

4.1 Test the system in real life case
4.2 Confirm HTML and CSS code validate to W3C standards
4.3 Test visualisation on different browsers and screen sizes
4.4 Fix problems
4.5 Show result to supervisor and get feedback
4.6 Make final editions in according with supervisor's feedback
4.7 Testing is pasted

5. Closing

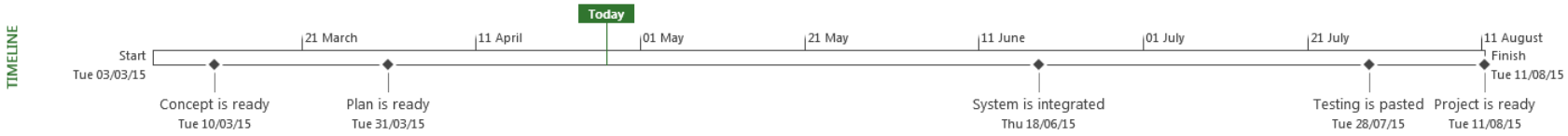
5.1 Prepare final report
5.2 Final presentation
5.3 Project is ready

7 Milestones

Start	3/2/15 8:00 AM
Concept is ready	3/30/15 9:00 AM
Plan is ready	4/6/15 2:00 PM
System is integrated	5/11/15 2:00 PM
Testing is pasted	5/20/15 4:00 PM
Project is ready	5/25/15 2:00 PM

8 Appendix

8.1 Milestones



8.2 Cost overview

COST OVERVIEW

TUE 03/03/15 - TUE 11/08/15

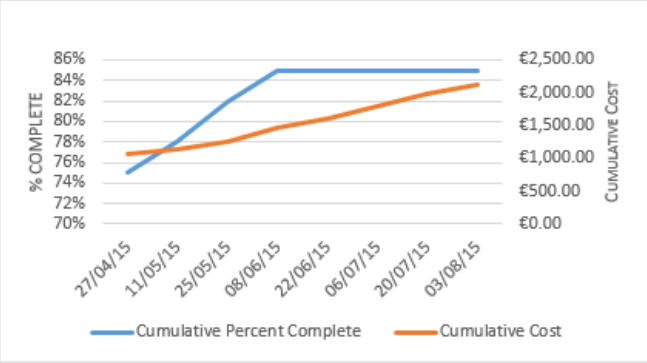
COST
€2,118.00

REMAINING COST
€717.60

% COMPLETE
85%

PROGRESS VERSUS COST

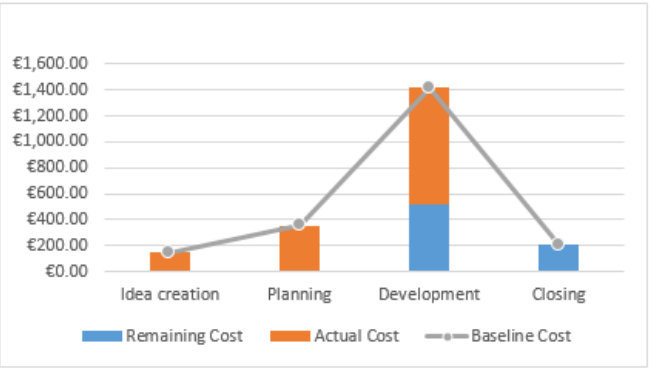
Progress made versus the cost spent over time. If % Complete line below the cumulative cost line,your project may be over budget.



COST STATUS

Cost status for all top-level tasks. Is your baseline zero?

Try setting as baseline

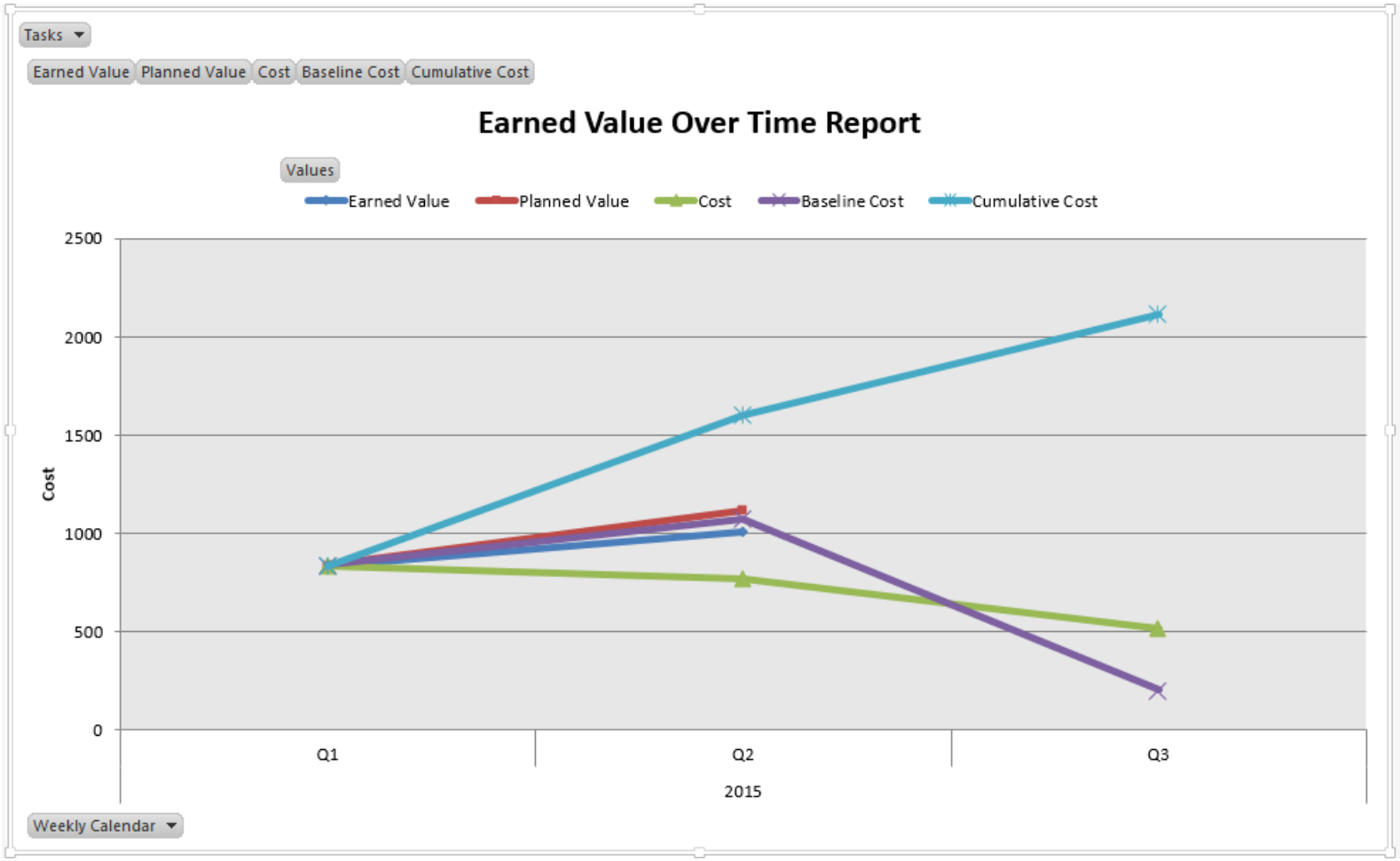


COST STATUS

Cost status for top level tasks.

Name	Actual Cost	Remaining Cost	Baseline Cost	Cost	Cost Variance
Idea creation	€144.00	€0.00	€144.00	€144.00	€0.00
Planning	€354.00	€0.00	€354.00	€354.00	€0.00
Development	€902.40	€513.60	€1,416.00	€1,416.00	€0.00
Closing	€0.00	€204.00	€204.00	€204.00	€0.00

8.3 Earned Value over time



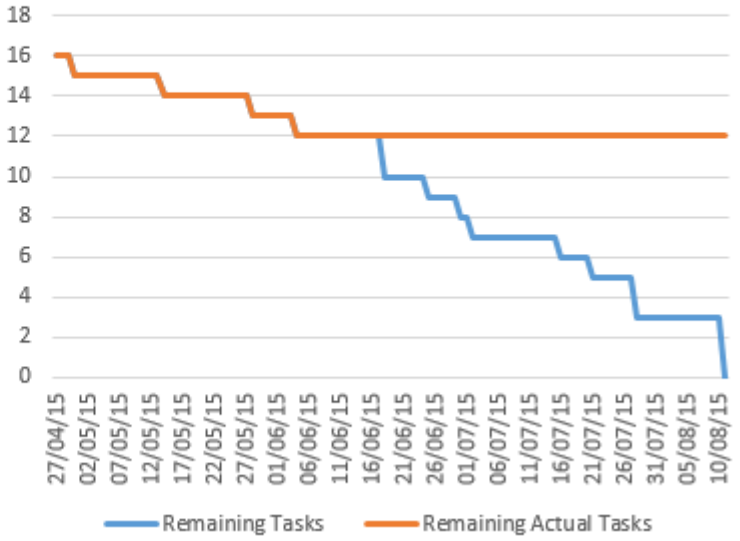
8.4 Milestones Report

MILESTONE REPORT

COMPLETED MILESTONES

Milestones that are 100% complete.

Name	Finish
Concept is ready	Tue 10/03/15

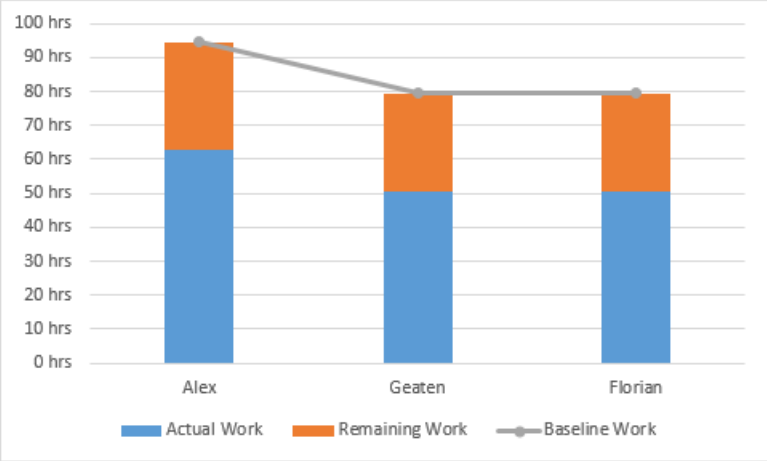


8.5 Resource overview

RESOURCE OVERVIEW

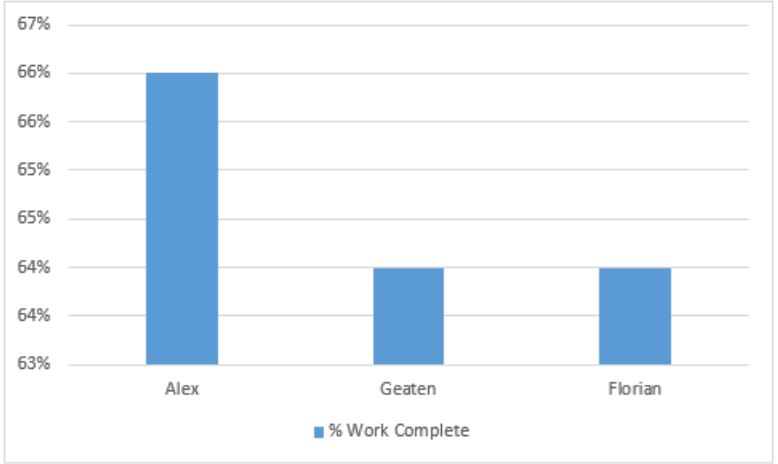
RESOURCE STATS

Work status for all work resources.



WORK STATUS

% work done by all the work resources.



RESOURCE STATUS

Remaing work for all work resources.

Name	Start	Finish	Remaining Work
Alex	Tue 03/03/15	Tue 11/08/15	31.9 hrs
Geaten	Tue 03/03/15	Tue 11/08/15	28.9 hrs
Florian	Tue 03/03/15	Tue 11/08/15	28.9 hrs

8.6 Delay in project schedule

Idea creation	**Tue 03/03/15**	**Tue 10/03/15**	**Tue 03/03/15**	**Tue 10/03/15**	**0 days**	**0 days**
Planning	**Thu 12/03/15**	**Thu 16/04/15**	**Thu 12/03/15**	**Thu 09/04/15**	**0 days**	**1.63 days**
Develop the architecture	Thu 12/03/15	Thu 12/03/15	Thu 12/03/15	Thu 12/03/15	0 days	0 days
Identify the te	Tue 17/03/15	Tue 17/03/15	Tue 17/03/15	Tue 17/03/15	0 days	0 days
Identify the details of data	Thu 19/03/15	Thu 19/03/15	Thu 19/03/15	Thu 19/03/15	0 days	0 days
Separate roles	Tue 24/03/15	Tue 24/03/15	Tue 24/03/15	Tue 24/03/15	0 days	0 days
Set deadlines for	Thu 26/03/15	Thu 26/03/15	Thu 26/03/15	Thu 26/03/15	0 days	0 days
Create resourc	Tue 31/03/15	Tue 31/03/15	Tue 31/03/15	Tue 31/03/15	0 days	0 days
Order hardwar	Tue 31/03/15	Thu 16/04/15	Tue 31/03/15	Thu 09/04/15	0 days	1.63 days
Plan is ready	Tue 31/03/15	Tue 31/03/15	Tue 31/03/15	Tue 31/03/15	0 days	0 days
Development	**Tue 31/03/15**	**Tue 28/07/15**	**Tue 31/03/15**	**Thu 02/07/15**	**0 days**	**1.63 days**
Closing	**Tue 28/07/15**	**Tue 11/08/15**	**Tue 07/07/15**	**Tue 21/07/15**	**1.63 days**	**1.63 days**

8.7 Top level tasks

Task Name	Start	Finish	Baseline Start	Baseline Finish	Start Var.	Finish Var.
Idea creation	**Tue 03/03/15**	**Tue 10/03/15**	**Tue 03/03/15**	**Tue 10/03/15**	**0 days**	**0 days**
Planning	**Thu 12/03/15**	**Thu 16/04/15**	**Thu 12/03/15**	**Thu 09/04/15**	**0 days**	**1.63 days**
Development	**Tue 31/03/15**	**Tue 28/07/15**	**Tue 31/03/15**	**Thu 02/07/15**	**0 days**	**1.63 days**
Closing	**Tue 28/07/15**	**Tue 11/08/15**	**Tue 07/07/15**	**Tue 21/07/15**	**1.63 days**	**1.63 days**

8.8 Project overview

PROJECT OVERVIEW

TUE 03/03/15 - TUE 11/08/15

% COMPLETE

85%

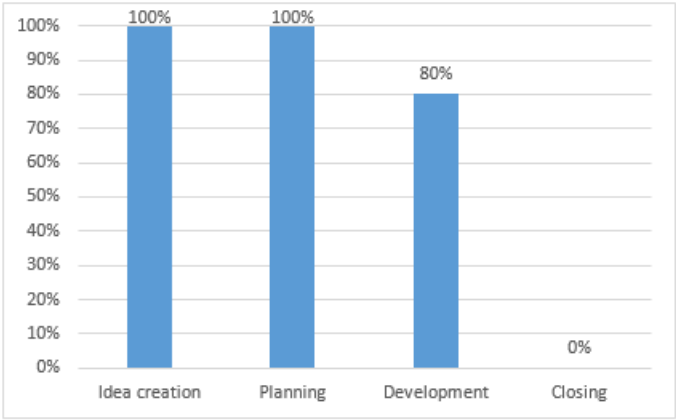
MILESTONES DUE

Milestones that are coming soon.

Name	Finish

% COMPLETE

Status for all top-level tasks. To see the status for subtasks, click on the chart and update the outline level in the Field List.



LATE TASKS

Tasks that are past due.

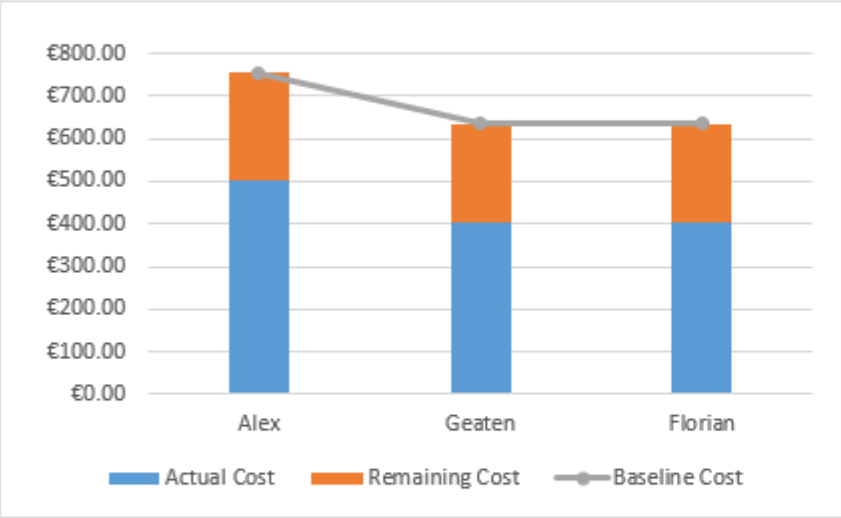
Name	Start	Finish	Duration	% Complete	Resource Names

8.9 Resource cost overview

RESOURCE COST OVERVIEW

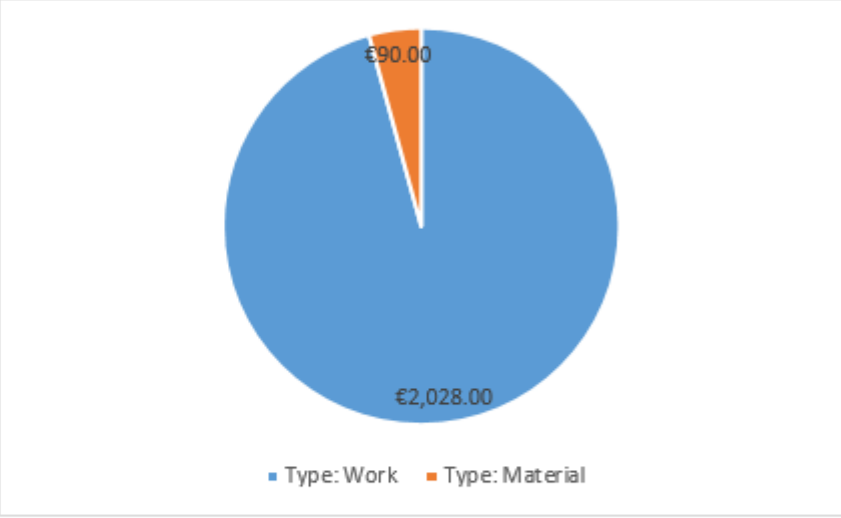
COST STATUS

Cost status for work resources.



COST DISTRIBUTION

How costs are spread out amongst different resource types.



COST DETAILS

Cost details for all work resources.

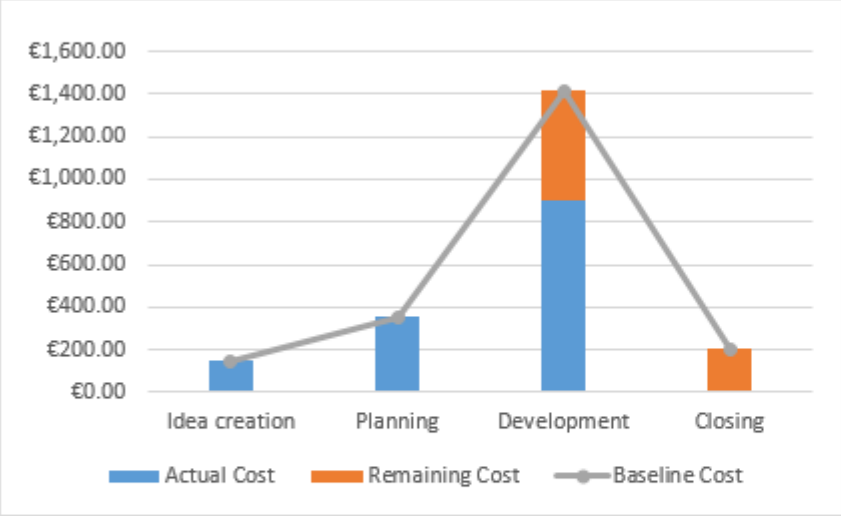
Name	Actual Work	Actual Cost	Standard Rate
Alex	62.6 hrs	€500.80	€8.00/hr
Geaten	50.6 hrs	€404.80	€8.00/hr
Florian	50.6 hrs	€404.80	€8.00/hr

8.10 Task cost overview

TASK COST OVERVIEW

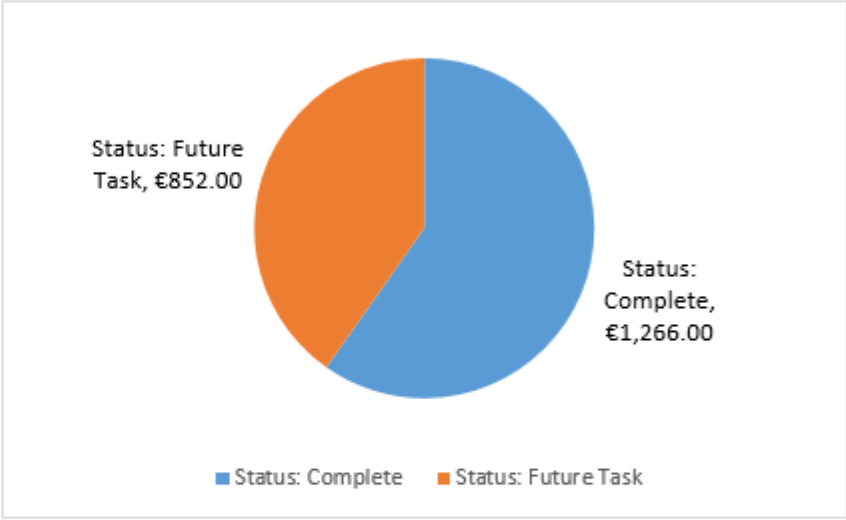
COST STATUS

Cost status for top-level tasks.



COST DISTRIBUTION

How costs are spread out amongst tasks based on their status.



COST DETAILS

Cost details for all top-level tasks.

Name	Fixed Cost	Actual Cost	Remaining Cost	Cost	Baseline Cost	Cost Variance
Idea creation	€0.00	€144.00	€0.00	€144.00	€144.00	€0.00
Planning	€0.00	€354.00	€0.00	€354.00	€354.00	€0.00
Development	€0.00	€902.40	€513.60	€1,416.00	€1,416.00	€0.00
Closing	€0.00	€0.00	€204.00	€204.00	€204.00	€0.00

8.11 Work Overview