

Smart Greenhouse - Easy Farming

Milan Stojković
Uroš Milenković

The problem

Problem statement

Improving farm productivity is essential for **increasing farm profitability**

Farm productivity can be increased by understanding and forecasting crop performance in a variety of environmental conditions.

Data problem

Crop performance data collection is currently slow, as such crop studies are often undertaken in remote and distributed locations, and such data is **typically collected manually**.

Challenges

Challenge 1

Increase crop yield

Cropping cycle can be drastically shortened while crop/flower quality is improved

Challenge 2

Environmentally friendly solution

Create sensors which are not only environmentally friendly but also profitable

Challenge 3

IoT automation

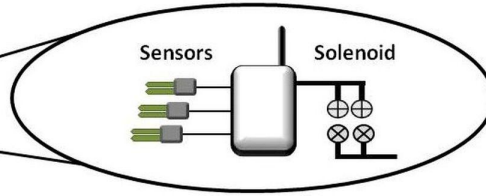
Monitoring plant and soil conditions is a simple use case -- but it can lead to a fantastic return on investment

Solution

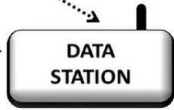
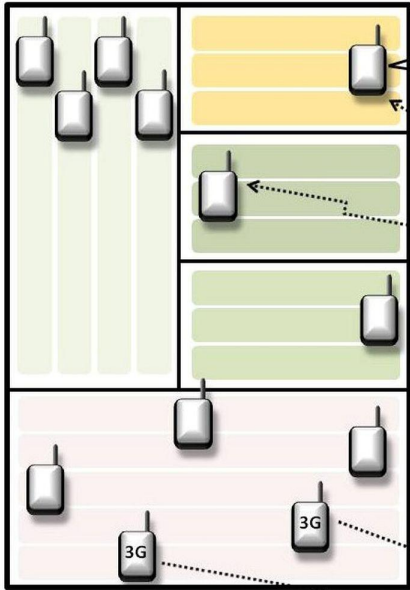
Smart Greenhouse



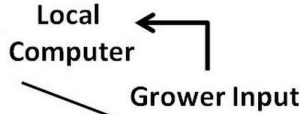
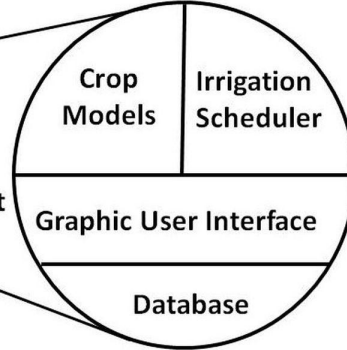
Local Irrigation Control



Production Area / Irrigation Zone



Global Irrigation Control



(Via Secure Internet Connection)



Implementation

Participants

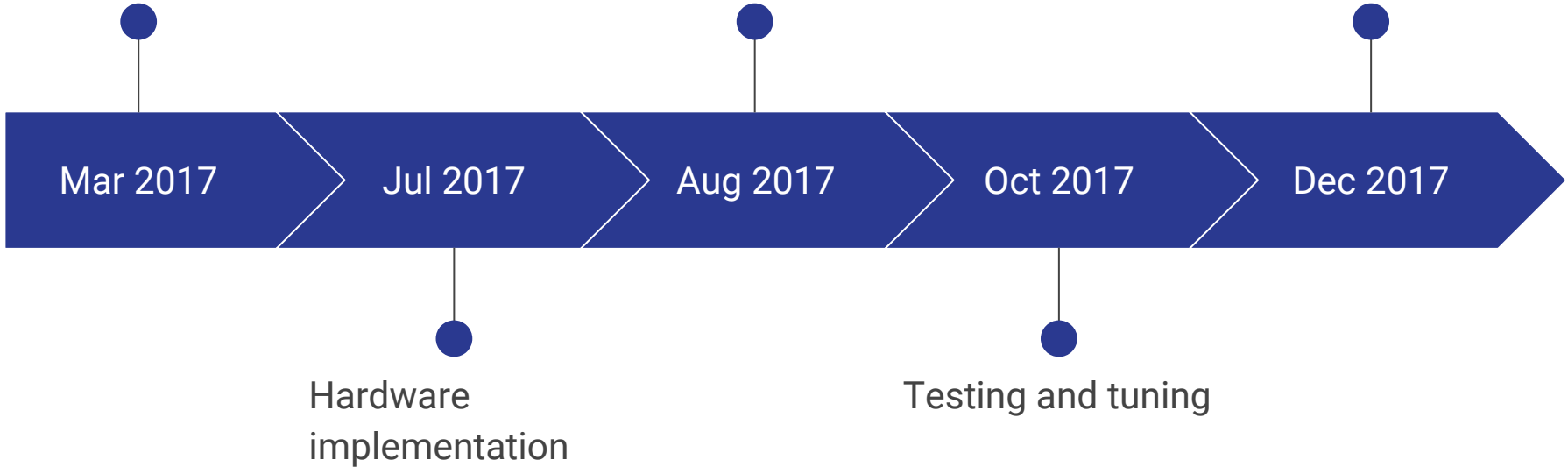


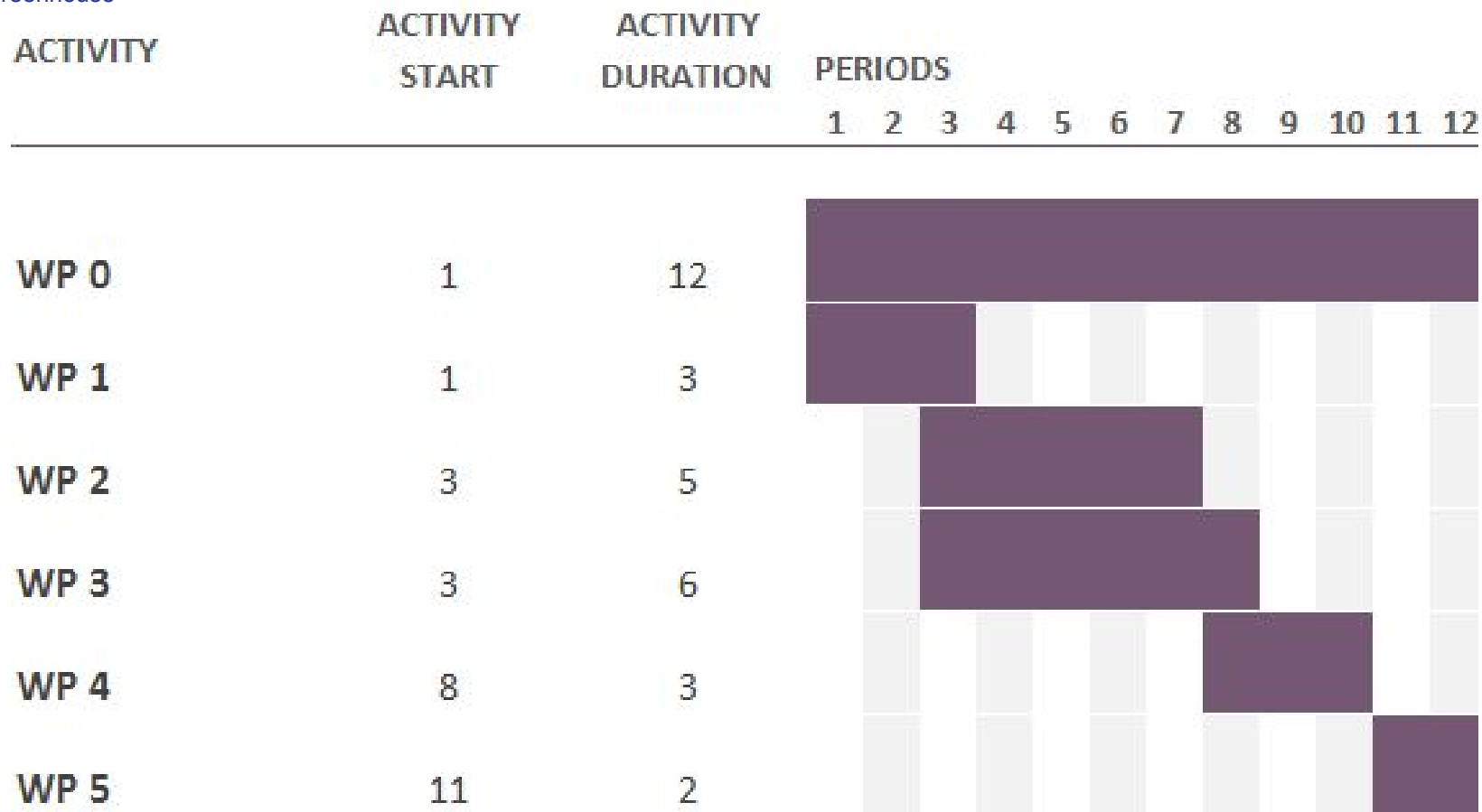
Work package list

Development of
system architecture

Software
implementation

Releasing the product





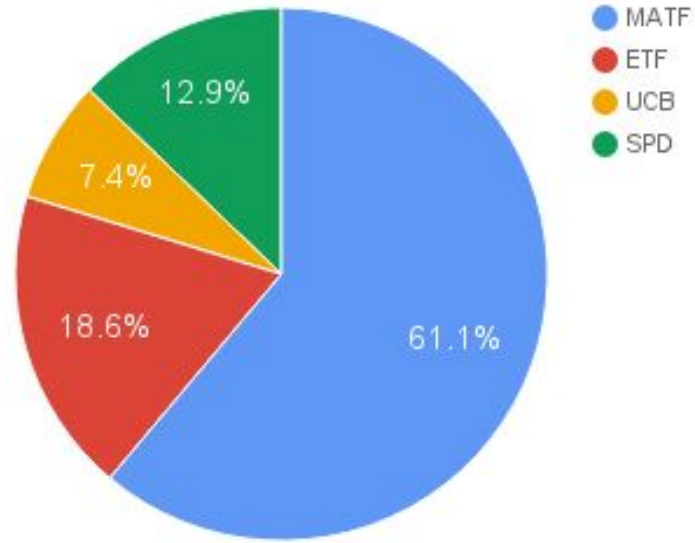
Work package No	Work package title	Type of activity	Lead partic no.	Lead partic. short name	Person - months	Start month	End month
WP0	Project management	MGT	1	MATF	24	M1	M12
WP1	Development of system architecture	RTD	1	MATF	30	M1	M3
WP2	Hardware implementation	RTD	2	ETF	80	M3	M7
WP3	Software implementation	RTD	2	ETF	100	M3	M8
WP4	Testing and tuning	RTD	2	ETF	50	M8	M10
WP5	Releasing the product	DEM	1	MATF	50	M10	M12
	TOTAL				334		

Del. no.	Deliverable name	WP no.	Nature	Dissemi-nation level	Delivery date (proj. month)
D0.1-D0.12	Monthly reports	WP0	R	PU	M1-M12
D1.1	Agriculture algorithm (proof of concept)	WP1	P	CO	M3
D1.2	Define HW architecture (servers, communication protocols, etc.)	WP1	P	CO	M2
D1.3	Define use cases	WP1	P	CO	M2
D2.1	Industrial design of greenhouse	WP2	R	PU	M2
D2.2	Choosing appropriate non-IT HW (fans, lamps, watering mechanism)	WP2	P	PP	M4
D2.3	Implementing HW (servers, microcontrollers, etc.)	WP2	R	PP	M5
D2.4	Putting together whole HW architecture and testing	WP2	P	PP	M7
D2.5	Report on implemented HW	WP2	R	PP	M7

Del. no.	Deliverable name	WP no.	Nature	Dissemi-nation level	Delivery date (proj. month)
D3.1	Database design and implementation	WP3	R	CO	M4
D3.2	Implementation of server SW and server/client communication	WP3	R	CO	M7
D3.3	Implementation of SW for controlling external devices	WP3	R	CO	M8
D4.1	Testing SW implementation	WP4	R	PP	M9
D4.2	Testing HW implementation	WP4	R	PP	M9
D4.3	Integration testing	WP4	R	PP	M10
D5.1	List of public appearances for dissemination purposes	WP5	R	PU	M12
D5.2	List of investor contact and presentation made	WP5	R	PU	M12
D5.3	List of brainstorming meetings	WP5	R	PU	M12
D5.4	List of in-house talks and brainstorming meetings	WP5	R	PU	M12

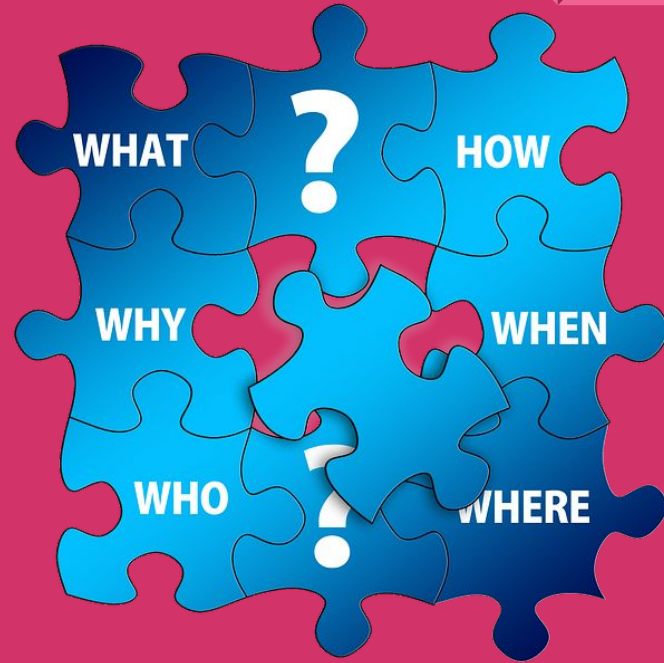
Milestone number	Milestone name	Work package(s) involved	Expected date	Means of verification
M0.0.1-M0.0.12	Weekly reports	WP0-WP5	M1	Updating other team members about current progress.
M0.1	Managing finances	WP0	M1	
M0.2	Selling out project	WP0	M12	Making deal, and selling out project.
M0.3	Shutting down project	WP0	M12	Project is finished.
M1	System architecture defined	WP1	M3	Architecture specification.
M2	HW implemented	WP2	M7	HW is implemented, documented and tested.
M3	SW implemented	WP3	M8	SW is implemented, documented and tested.
M4	Testing and tuning both SW and HW	WP4	M10	Testing of whole system.
M5	Project marketing	WP5	M12	Project marketing.

Total person months: 334



Summary effort pie

Questions



Thanks!

If you need any further information please contact us

mi10164@alas.matf.bg.ac.rs