

**Project Acronym:**  
PROSTASONIC(ENTERPRISES/0618/0012)

Prostate cancer ablation with a 4D robotic system using thermal ultrasonic waves under MRI guidance.

**Deliverable: 1.3**

**Title:** Minutes of all group meetings.

**Prepared by:**

Theocharis Drakos (MEDSONIC)  
Marinos Giannakou (MEDSONIC)  
Christakis Damianou (CUT)  
Leonidas Ioannou (POLYCLINIC YGIA)

**Date:** 06/04/2020 (Version 1)  
22/03/2021 (Version 2)



**Ευρωπαϊκή Ένωση**  
Ευρωπαϊκά Διαρθρωτικά  
και Επενδυτικά Ταμεία



Κυπριακή Δημοκρατία



**Διαρθρωτικά Ταμεία**  
της Ευρωπαϊκής Ένωσης στην Κύπρο

## Table of Contents

Executive summary.....	3
Minutes of all group meeting 1.....	4
Minutes of all group meeting 2.....	5
Minutes of all group meeting 3.....	6
Minutes of all group meeting 4.....	8
Minutes of all group meeting 5.....	10
Minutes of all group meeting 6.....	12
Minutes of all group meeting 7.....	14

## **Executive Summary**

This deliverable (D1.3) includes all the minutes of all group meetings. The date, place, participants, agenda and minutes of each meeting are mentioned.

## **Minutes of partners meeting 1**

**Name of grant:** PROSTASONIC

**Date:** 18/06/2019 (5:00 pm – 7:00 pm)

**Place:** Therapeutic Ultrasound Lab, Cyprus University of Technology

### **Participants:**

M. Giannakou (MEDSONIC),  
T. Drakos (MEDSONIC),  
C. Damianou (CUT),  
N. Evripidou (CUT),  
C. Ioannides (POLYCLINIC YGIA).

### **Agenda:**

- 1) Introduction of participants
- 2) Overview of proposal (C. Damianou)
- 3) Management (M. Giannakou)

### **Minutes:**

- 1) All the participants have been introduced by the coordinator.
- 2) The scientific coordinator (C. Damianou) presented the aims of the proposal, the workpackages, and deliverables.  
He asked the participants to pay attention to the deadlines and set procedure for reporting of deliverables.  
He presented the template of the deliverables.  
He explained the details of all workpackages.  
Technical tasks were assigned based on the recommendation of the scientific coordinator.
- 3) M. Giannakou presented the WP1 (management).  
He presented the timesheets of the project and emphasized all the approaching deadlines.  
He announced the new researchers to be hired.  
He analyzed the budget allocation and the payment procedures.

The next meeting will take place roughly in 3 months from this meeting.

## **Minutes of all group meeting 2**

**Name of grant:** PROSTASONIC

**Date:** 02/09/2019 (10:00 am – 12:00 pm)

**Place:** Therapeutic Ultrasound Lab, Cyprus University of Technology

### **Participants:**

M. Giannakou (MEDSONIC),  
T. Drakos (MEDSONIC),  
C. Damianou (CUT),  
N. Evripidou (CUT).

### **Agenda:**

- 1) Cart version and electronic system (N. Evripidou)
- 2) PROSTASONIC robot version 1 (M. Giannakou)
- 3) Agar phantom development (T. Drakos)

### **Minutes:**

1) N. Evripidou presented the first version of the electronic cart.  
He explained in detail the different parts of the electronic cart.  
He informed the participants for the progress of the electronic system.

2) M. Giannakou presented the robot version 1 of PROSTASONIC.  
He explained the designed parts of the robot and the details of each part.  
He introduced the robot's version 1 free movements.

3) T. Drakos presented the development of agar-based gel phantom.  
He explained in detail the materials and the procedure to develop the phantom.  
He explained the first experiments of the thermal conductivity estimation of the agar-based gel phantom.  
He informed the participants for the upcoming experiments to observe any effect of the phantom materials on thermal conductivity and propagation speed.  
He informed the participants for the upcoming phantom X-ray images that will be acquired.

The next meeting will take place roughly in 3 months from this meeting.

## **Minutes of all group meeting 3**

**Name of grant:** PROSTASONIC

**Date:** 10/12/2019 (11:00 am – 1:00 pm)

**Place:** Therapeutic Ultrasound Lab, Cyprus University of Technology

### **Participants:**

M. Giannakou (MEDSONIC),  
T. Drakos (MEDSONIC),  
N. Evripidou (CUT),  
C. Damianou (CUT).

### **Agenda:**

Every participant explained the stage of each deliverable for which he/she is responsible, the deliverables which have already been completed and the future work for each deliverable that has remained.

### **Minutes:**

- 1) Project Coordinator (M. Giannakou) presented in general lines the work already done and future work.
- 2) M. Giannakou explained that the Interim report (D1.1) will be finished by July.
- 3) T. Drakos and C. Damianou informed the other members about the creation of social media (Facebook, LinkedIn, Twitter) for the Communication and outreach strategy plan (D1.4) and the material that has been posted so far. They were also informed about the creation of a newsletter.
- 4) C. Damianou informed the participants that a publication in a scientific journal (D2.1) is under preparation and a presentation at a scientific conference (D2.2) is also under preparation.
- 5) M. Giannakou did a general overview of the 4 DOF robotic system (D3.1) and explained that the robotic device with the large motors has been prepared and the robotic device with the small motors is under preparation.
- 6) M. Giannakou presented the completed ultrasonic transducer (D3.2) but it remains the design and development of the probe that will hold the transducer.
- 7) N. Evripidou explained that the Electronic driving system (D3.3) has been completed.
- 8) N. Evripidou explained that the Design of medical cart (D3.4) is under preparation.

9) T. Drakos informed the participants that the Development of Agar/silica/milk phantom (D4.1) has been prepared.

10) T. Drakos explained the progress of the MR thermometry (D4.2). The MR thermometry is under preparation using Spoiled Gradient (SPGR) echo pulse sequence.

11) N. Evripidou explained that the Software of the ultrasonic system for prostate treatment (D5.1) is under preparation. The ultrasound control part of the software has been prepared.

12) T. Drakos informed the group that the MRI compatibility of the transducer (D6.1) has been finished while the MRI compatibility of the robotic system with only one motor will be completed after the printing and wiring of the 4 DOF robotic system in January. N. Evripidou will prepare an interface for the MRI room.

13) M. Giannakou explained that the Evaluation of the accuracy of the robotic system (D6.2) can be completed after the printing and wiring of the 4 DOF robotic system. It is expected to be finished in January.

14) T. Drakos has reported that the MRI evaluation of the thermal heating of the transducer (D6.3) is under preparation for phantom and excised tissue experiments and it still requires experiments in animals.

The next meeting will take place roughly in 3 months from this meeting.

## **Minutes of all group meeting 4**

**Name of grant:** PROSTASONIC

**Date:** 03/04/2020 (1:00 pm – 2:00 pm)

**Place:** Teleconference (due to coronavirus pandemic situation)

### **Participants:**

M. Giannakou (MEDSONIC),  
T. Drakos (MEDSONIC),  
N. Evripidou (CUT),  
C. Damianou (CUT).

### **Agenda:**

Every participant explained the progress for the deliverable he/she is engaged. The goals-work packages achieved in the first year of the project have also been discussed. The deliverables that have already been completed during the first 12 months of the project have been presented. The work that remains to be done as well as the project plan of the second year have been discussed and shared accordingly to the participants.

### **Minutes:**

- 1) Project Coordinator (M. Giannakou) presented the progress with work packages and deliverables of the first year of the project. He explained that the interim report has been almost prepared, and he presented the completed deliverables that will be submitted in the interim report. He also introduced the future work of the project and the project plan that will be followed during the second year.
- 2) M. Giannakou explained that the Interim report (D1.1) has been almost prepared and will be fully completed by the 12<sup>th</sup> month.
- 3) C. Damianou and T. Drakos explained that the minutes of all group meeting is prepared and that the deliverable (D1.3) is up to date.
- 4) T. Drakos and C. Damianou informed the other members about the information, material and results that have been posted in social media (Facebook, LinkedIn, Twitter) for the Communication and outreach strategy plan (D1.4). Pictures of robotic devices, electronic system, evaluation results and other material have been posted so far as explained. They were also informed about the creation of the 2<sup>nd</sup> issue of newsletter and the finalization of the project brochure.
- 5) C. Damianou informed the participants that a publication in a scientific journal (D2.1) has been already prepared and an abstract at a scientific conference (D2.2) has been also submitted. Our presence in the conference will depend on the status of the coronavirus pandemic. In the second year, another publication will be prepared and an abstract at a scientific conference will be submitted.



- 6) M. Giannakou explained that the preparation of application for CE marking (D2.5) is under preparation.
- 7) C. Damianou informed the participants that the preparation of application of clinical trial Phase-I (D2.6) is under preparation.
- 8) C. Damianou informed the participants that the commercialization plan of the project (D2.7) is under preparation. He explained that the plan will be prepared during the second year.
- 9) M. Giannakou presented the final version of the 4 DOF robotic system (D3.1) with the large motors and the 4 DOF robotic device with the small motors.
- 10) M. Giannakou informed the participants that the ultrasonic transducers (D3.2) of the project were completed in the 6<sup>th</sup> month. The probe that holds the transducer was also designed and developed.
- 11) N. Evripidou informed the participants that the Electronic driving system (D3.3) has been completed.
- 12) N. Evripidou informed the participants that the Design of medical cart (D3.4) has been finished.
- 13) T. Drakos informed the participants that the Development of Agar/silica/milk phantom (D4.1) has been completed.
- 14) T. Drakos informed the participants that the MR thermometry (D4.2) has been finished.
- 15) N. Evripidou explained that the Software of the ultrasonic system for prostate treatment (D5.1) is under preparation.
- 16) T. Drakos informed the group that the MRI compatibility of the transducer and robotic system (D6.1) has been completed.
- 17) M. Giannakou and T. Drakos explained that the Evaluation of the accuracy of the robotic system (D6.2) is under preparation. Specially designed parts will be designed, and 3D printed to be temporarily assembled in the robotic system for motion measurements.
- 18) T. Drakos has reported that the MRI evaluation of the thermal heating of the transducer (D6.3) in excised tissues has been completed while it remains the evaluation in rabbits that will be performed in the second year.
- 19) C. Damianou explained that the Evaluation of navigation algorithms for reducing the near-field heating and the treatment time (D6.4) is under preparation.

The next meeting will take place roughly in 3 months from this meeting.

## **Minutes of all group meeting 5**

**Name of grant:** PROSTASONIC

**Date:** 14/09/2020 (10:00 am – 11:00 am)

**Place:** Therapeutic Ultrasound Lab, Cyprus University of Technology

### **Participants:**

M. Giannakou (MEDSONIC),  
T. Drakos (MEDSONIC),  
N. Evripidou (CUT),  
A. Philippou (CUT),  
C. Damianou (CUT).

### **Agenda:**

Every participant explained his/her progress within the project. The project coordinator introduced the work that has already finished and submitted. The remaining tasks of the project have been also presented.

### **Minutes:**

- 1) Project Coordinator (M. Giannakou) explained that the completed deliverables of the first year with the interim report have been successfully submitted to the Research and Innovation Foundation. He presented the remaining tasks of the project.
- 2) M. Giannakou explained that the Interim report (D1.1) has been finished and submitted (12<sup>th</sup> month).
- 3) C. Damianou and T. Drakos explained that the minutes of all group meeting is prepared and that the deliverable (D1.3) is up to date.
- 4) T. Drakos and C. Damianou informed the other members that evaluation results (on phantoms and excised tissues) have been posted in the social media. They were also informed about the creation of the 3<sup>rd</sup> issue of the newsletter.
- 5) C. Damianou informed the participants that a publication in a scientific journal (D2.1) has been already prepared and will be submitted to a scientific journal. A. Philippou and N. Evripidou explained that a presentation at a scientific virtual conference (D2.2) has been submitted and accepted.
- 6) M. Giannakou explained that the preparation of application for CE marking (D2.5) is under preparation.
- 7) A. Philippou informed the participants that the preparation of application of clinical trial Phase-I (D2.6) is under preparation.
- 8) A. Philippou informed the participants that the commercialization plan of the project (D2.7) is under preparation.

9) M. Giannakou and N. Evripidou explained that the deliverables 3.1, 3.2, 3.3, and 3.4 have been completed in the first year and submitted. An issue with the cooling of the transducer of the robotic device has been noticed. M. Giannakou explained that a cooling system to address this issue is under preparation.

10) T. Drakos informed the participants that the Development of Agar/silica/milk phantom (D4.1) has been completed and submitted in the first year.

11) T. Drakos informed the participants that the MR thermometry (D4.2) has been finished.

12) N. Evripidou explained that the Software of the ultrasonic system for prostate treatment (D5.1) has been finished, but the report is pending.

13) T. Drakos informed the group that the MRI compatibility of the transducer and robotic system (D6.1) has been completed.

14) M. Giannakou and T. Drakos explained that the Evaluation of the accuracy of the robotic system (D6.2) has been completed.

15) T. Drakos and A. Philippou have reported that the MRI evaluation of the thermal heating of the transducer (D6.3) in excised tissues has been completed. The evaluation of the robotic system in rabbits has been also finished.

16) C. Damianou explained that the Evaluation of navigation algorithms for reducing the near-field heating and the treatment time (D6.4) has been completed.

The next meeting will take place roughly in 3-4 months from this meeting.

## **Minutes of all group meeting 6**

**Name of grant:** PROSTASONIC

**Date:** 22/12/2020 (10:00 am – 11:00 am)

**Place:** Therapeutic Ultrasound Lab, Cyprus University of Technology

### **Participants:**

M. Giannakou (MEDSONIC),  
N. Evripidou (CUT),  
A. Philippou (CUT),  
C. Damianou (CUT).

### **Agenda:**

Every participant explained his/her progress within the project. The project coordinator introduced the work that has already finished as well as the remaining tasks that were left until the completion of the project. The preparation of the final report has been also discussed.

### **Minutes:**

1) Project Coordinator (M. Giannakou) presented the remaining tasks until the end of the project. He also informed the participants that the final report will be prepared by A. Philippou, M. Giannakou, and C. Damianou.

2) M. Giannakou explained that the following deliverables have been finalized and submitted the first year of the project.

- D 1.1 (Interim report)
- D 2.1 (Publication in a scientific journal)
- D 2.2 (Presentation at a scientific conference)
- D 3.1 (Four DOF robotic device)
- D 3.2 (Ultrasonic transducer)
- D 3.3 (Electronic driving system)
- D 3.4 (Design of medical cart)
- D 4.1 (Development of agar/silica/milk phantom)

3) M. Giannakou and C. Damianou explained that the minutes of all group meeting is prepared and that the deliverable (D1.3) is up to date. The deliverable will be submitted by the end of the project.

4) C. Damianou informed the other members that the updated communication and outreach strategy plan will be finalized by the 24<sup>th</sup> month.

5) C. Damianou informed the participants that a publication in a scientific journal (D2.3) has been already submitted to a scientific journal is under review. A. Philippou

explained that a presentation at a scientific conference (D2.4) has been submitted and is under review.

6) M. Giannakou explained that the preparation of application for CE marking (D2.5) is under preparation. Before its finalization, it will be reviewed by A. Philippou and C. Damianou.

7) A. Philippou and C. Damianou informed the participants that the preparation of application of clinical trial Phase-I (D2.6) is at the final stage before its completion.

8) A. Philippou and C. Damianou informed the participants that the commercialization plan of the project (D2.7) is at the final stage.

9) C. Damianou informed the participants that the MR thermometry (D4.2) has been finished.

10) N. Evripidou explained that the Software of the ultrasonic system for prostate treatment (D5.1) has been finished and the deliverable is under preparation.

11) M. Giannakou explained that the Evaluation of the accuracy of the robotic system (D6.2) has been completed by T. Drakos.

12) A. Philippou has reported that the MRI evaluation of the thermal heating of the transducer (D6.3) in excised tissues has been completed. The evaluation of the robotic system in rabbits has been also finished. The deliverable is still under preparation.

13) A. Philippou explained that the Evaluation of navigation algorithms for reducing the near-field heating and the treatment time (D6.4) has been completed and the deliverable is under preparation.

The next meeting will take place roughly in 3-4 months from this meeting.

## **Minutes of all group meeting 7**

**Name of grant:** PROSTASONIC

**Date:** 19/03/2021 (01:00 pm – 02:00 pm)

**Place:** Virtual meeting

### **Participants:**

M. Giannakou (MEDSONIC),  
N. Evripidou (CUT),  
A. Philippou (CUT),  
C. Damianou (CUT).

### **Agenda:**

The project coordinator informed the participants about the work that has already finished as well as the remaining tasks that were left until the completion of the project. He also informed about the creation of a closing event and the preparation of the final report.

### **Minutes:**

1) Project Coordinator (M. Giannakou) presented the remaining tasks until the end of the project. He also informed the participants that the final report is under preparation.

2) M. Giannakou explained that the following deliverables are close to be finished:

- D 1.2 (Final report)
- D 1.3 (Minutes of all group meetings)
- D 1.4 (Communication and outreach strategy plan)
- D 2.7 (Commercialization Plan)
- D 6.3 (MRI evaluation of the thermal heating of the transducer)

3) M. Giannakou and C. Damianou explained that the minutes of all group meeting (D1.3) is up to date. The deliverable is completed with this last meeting.

4) C. Damianou informed the other members that the updated communication and outreach strategy plan will be finalized by the 24<sup>th</sup> month. A last newsletter will be created by the end of March. A closing event will be conducted.

5) A. Philippou and C. Damianou informed the participants that the commercialization plan of the project (D2.7) is at the final stage. A PowerPoint presentation of the business plan will be added.

6) A. Philippou stated that the MRI evaluation of the thermal heating of the transducer (D6.3) in excised tissues has been completed. The deliverable is still under preparation. Results using the developed cooling system and a new probe will be included.

7) M. Giannakou mentioned that all the other deliverables have been completed successfully.

This is the last meeting of the project.