Short description

Tunisia is an emerging economy with a large pool of medical and engineering talent. The Glia Tunisia office aims to integrate medical and engineering expertise to create a high caliber domestic medical device research, development and manufacturing sector.

Objective(s)

- Set vision for Glia Tunisia's work in the next 1 year
- Create a coordinated strategy between Faculté de Médecine de Tunis (FMT), Ecole Supérieure Privée d'Ingénierie et des Technologies (Esprit), and Glia International to implement Glia Tunisia's visionEnsure sufficient stock for all prehospital and hospital stakeholders
- Build five 3D printers for the manufacture of medical devices
- Manufacture one hundred stethoscopes for distribution and use by medical students in Tunisia
- Gain Conformité Européenne (CE) certification for Class I devices

Intended beneficiaries

- Ministry of Health (Tunisia) – delivery of low cost stethoscopes to students, physicians and allied health care professionals
- Faculté de Médecine de Tunis (FMT) – provision of low cost stethoscopes to students and engagement in medical device development
- Ecole Supérieure Privée d'Ingénierie et des Technologies (Esprit) – practical biomedical engineering and production experience

Schedule

Table 1. Expected activity timeline

Activity	Start date	Duration (days)
Introduction and icebreakers	July 4	0.5
Review of vision	July 4	0.5
Construct five printers	July 5	5
Print stethoscopes	July 11	15
Opening meeting	July 11	1
Printer sessions for medical and engineering students	July 8	10
Medical licensing (CE)	July 4	120

Note: Weekends in Tunisia are Saturday and Sunday

July 4 schedule

10:00 – Session start
10:00-10:20 – Remarks by President of the ESPRIT administrative council (Naceur Ammar)
10:20-10:40 – Remarks by Dean of Faculté de Médecine de Tunis (Mohamed Jouini)
10:40-11:00 – Remarks by Canadian Ambassador to Tunisia (Carol McQueen)
11:00-11:20 – Remarks by Palestinian Ambassador to Tunisia (Heil El Fahoum)
11:20-11:45 – Remarks by Glia International (Tarek Loubani)
11:45-12:15 – Question, answer and discussion about Glia's vision and work (all previous speakers)

12:15-1:00 – Lunch
1:00-1:20 – Glia Canada's experiences (Dresden Glockler-Lauf and Lauren Tindale)
1:20-1:40 – Glia Gaza's experiences (Mohammed Abu Matar and Shaker Shaheen)
1:40-2:00 – Closing remarks (Naceur Ammar and Mohamed Jouini)

July 5 schedule

10:00-10:55 – Open discussion (Mohammed Abu Matar and Dresden Glockler-Lauf)
11:00-11:10 – Break
11:15-1:15 – Printer construction start (Shaker Shaheen and Lauren Tindale)

Outputs and deliverables

Printers and fabrication lab

In the first stage of this project, a fully functional fabrication lab with 3D printers will be commissioned to ensure high quality prints can be manufactured on site.

Stethoscope manufacturing

Stethoscopes will be the anchor product of Glia Tunisia, providing a visible marker of medical devices for physicians, nurses and allied health professionals. These stethoscopes will be manufactured and assembled in the Glia Tunisia fabrication labs at Esprit.

Printer training sessions

To ensure sustainability, medical and engineering students and other interested personnel will be trained in the manufacture of stethoscopes by the Glia Canada team.

Class I device certification

Training on the use of tourniquets will be covered in a separate complementary proposal.

Group cohesion and vision

A cohesive group with a clear vision is essential to ensure success of the project in the longterm.

Opening meeting

An opening meeting event will be held in the last hour of the sessions on July 11. We will invite the Deans of Ecole Supérieure Privée d'Ingénierie et des Technologies (Esprit) and Faculté de Médecine de Tunis (FMT), the ambassadors of Canada and Palestine and the involved medical and engineering students. Each can give comments to the assembled people.

Future project showcase

Future projects will be showcased, with a decision made by the leadership team in Tunisia regarding which projects they wish to pursue next.

Resources and budget

Table 2. Capital equipment requirements

	Quantity	Cost (EUR)
3D printers (Prusa MK3)	3	2.100
Total		2.100

Table 3. Consumable material requirements

	Quantity	Cost (EUR)
Filament (PETG)	10kg	240
Filament (PLA)	10kg	200
Silicone Tube (large)	50m	100
Silicone Tube (small)	20m	100
Diaphragms	200	50
Total		690

Table 4. Projected personnel costs

	Cost (EUR)
Travel for 2 Gaza engineers	2.000
Travel for 2 Glia Canada medical personnel	2.500
Travel for Dr. Tarek Loubani	1.200
Total	5.700

Communication strategy

Intra-group communication will be done with mattermost, kanboard, whatsapp, email, telephone and in-person meetings coordinated by Glia Tunisia for local matters and Glia Canada for international matters.

External communication will be via twitter, facebook, instagram and public talks in Tunisia and internationally.

The group will pursue newspaper, radio and television interview opportunities in July during the kickoff of the work.