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Bilateral R&D Project (this document will be shared with potential Spanish companies)

Wireless monitoring for hospitals medical gases alarm system

ESITIP Pre-proposal Submitted to the ITAC Collaborative Research Fund

By

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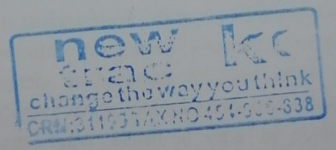

Egyptian Partners Contacts

Egyptian Academic Partner		**Egyptian Company**	
Date of Request:			
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Proposal Information

Project overview *(Please give brief / to the point explanations. For more explanation on any point below, you may add a short paragraph as an annexure, with this document.)*	
Abstract *The Abstract is a one-page summary of the proposal. It may consist of three paragraphs. The first paragraph describes the general discipline the proposal falls under. The second paragraph explains the*	*COVID-19 pandemic affects the whole world, that creates a huge number of affected people reach 450 million, and death cases reach around 6 million cases. World Health Organization (WHO) announcedthat medical oxygen gas is an essential medication for Corona virus infected patients. Oxygen consumption increased rapidly in hospitals because ofthe rapidly increase in hospital occupation. Consequently, intensive care unit (ICU)patients that are connected to ventilators can suffer death in case of sudden oxygen failure. Wireless monitoring for hospitals medical gases alarm system can be the solution for this*

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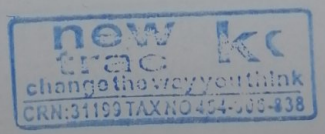
benefit of the proposal to the ICT industry. The third paragraph lists the specific deliverables of the proposal plan and its duration. *The pre-proposal length should be 6-8 pages, which requires that applicants clearly identify what this research has to offer to the ICT industry and the outcome of the project if funded.*	*issue.* *The benefit of the proposal that it is comply with the millennium Development 8th goal: Development a global partnership for development, especially its target No. 18 which states that: In co-operation with the private sector make available the benefits of new technologies, specifically information and communications. The proposal is complied with this ICTs and development goals especially in the sector of heath by applying telehealth applications that support hospital and clinical management, procedures, and information flows.* *The deliverables of the proposal are achieving a wireless monitoring system to allow the continuous monitoring of the medical gas network system in hospitals (Oxygen, Air, and Vacuum), and sending notifications in case of emergency or sudden failure and reduce the dependency on the surveillance personnel and reduce the human error. The proposal plan is divided into 4 phases. Phase I is design the proposed system, phase II is the implementation and manufacturing the system, phase III is equipped the system in a hospital and monitor its efficiency. Finally, phase IV is marketing for the proposed system.*
Proposal Area	**Strategic Areas**: Wireless and Cyber Security ☐ Electronics and Embedded Systems for ICT Applications √ ICT for Homeland Security ☐ ICT for Transportation ☐ ICT for Health √ ICT for Agriculture ☐ ICT for the Disabled ☐ ICT for Education ☐ ICT for Energy ☐ **Technology-Trend Areas**: Mobile Applications and Computing √ Cloud Computing √ Data Analytics and Big Data ☐ Internet of Things √ Gamification ☐ Cognitive Computing ☐ Smart Machines ☐ Blockchain ☐ Virtual and Augmented Reality ☐

Technology Review *This part should report the evolution of the topic and the current state-of-the-art. Set-up the historical evolution of your category. Define recent trends that make your solution possible show the importance of the proposal topic and its relevance to the ICT industry. Explain why your technology is novel and innovative, paying particular attention to the prior art.*	*Every hospital has at least three medical gases (Oxygen, Air, and Vacuum), these three medical gases are essential and vital especially for patients in intensive care units (ICU), Operating rooms (OR), and Emergency Department (ER), any failure supply for any gas may cause sever consequences. The traditional monitoring existing systems are local in the site for every gas station. Consequently, a surveillance personnel should exist and monitor the alarm system visually in the three essential gas stations for 24/7 in order to ensure its effectiveness, the patients may suffer death in case of the existence of any human error. Moreover, the time taken from the surveillance person to contact the specialist may takes along time that influence the time taken to fix the malfunction in medical gas hospital's network.* *Web-based, mobile applications, and new ICT industries made the proposed system possible to be implemented in hospitals, clinics, or any healthcare organization. The proposed system is a novel and innovative as it will be connected and integrated to the hospital IT system. Moreover, the proposed system will have a multiple KPIs that in not existed in the current existing systems such as: hospital consumption rate of gases, failure rate, automatic request to oxygen supplies, and more).*
Gap Definition *This section clearly defines the gap in current solutions/products that the proposed research will fill in and the available opportunities if this gap is bridged.*	*The gab in the current solutions / products that it depends only on humans and is manual, the surveillance person should manually monitor the alarm systems, and manually call the specialist to fix the malfunction. However, the medical gas alarm system is very vital, and patients' life depends on it.* *The proposed system is totally automatic, monitored wirelessly, and sends multiple notifications to numerous specialists at the same time to ensure the speed and error less.*
Proof-of-Concept *A very important part of the pre-proposal is a clear description of the status quo of the current research of the Principle Investigator (PI), which serves as the starting point of the project. This section*	*Multiple researcheshad been established, and multiple paper were published by the Principle Investigator and the research team in the same research of the proposed system such as:* 1- AREF, M. H., & SHARAWI, A. Centralized Medical Gas Monitoring Solution For Medical Piping Gases In The Hospitals. 2- Aref, M. H. F. (2012). Masteralarm and control system for medical piping gases.

may be used to present relevant results from work published by the applicants, a patent owned by the applicants, or promising preliminary results of the proposed research or methodology. *Details of the technical approaches adopted to obtain such results.*	3- Aref, M. H. F. (2020). Automated Monitoring System for Medical Healthcare Institutions. *The previous published papers serve as the starting point of the proposed system as they are in the same research point but in different techniques and ways, the published papers shows that the research team was capable to implement medical gas alarm system that runs smoothly in hospitals without any hazards.* *The proposed system will depend mainly on the concept published in the previous research / articles. However, ICT technology will be further implemented in the proposed one as discussed.*

Egyptian Company Profile

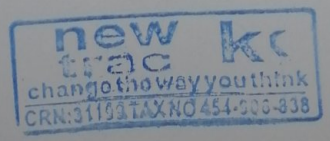
Your Company Profile *(Please give brief / to the point explanations. For more explanation on any point below, you may add a short paragraph as an annexure, with this document.)*	
Business Sector	New track Specialized In Medical Sector & Asset Management System
Company mission or core functions	- In 2011 Starting a pilot Hospital (Naser Institute) to make analysis and data unification . - Implement the centralized system for Specialized medical centers (42 Hospitals). - Update System And Implemented In More Than 50 Hospital And Medical Company
Date of establishment	2010



Ownership (if public and traded, add stock exchange and ticker symbol)	public
Total number of employees	15
Number of employees in R&D	3
Key products sold or services provided	Opencis For Hospital Opencis For Company Opencis For Assets
Company core technical competences	PHP – Apache – Mysql – Linux – Drubal - Flutter
Key R&D programs and activities	Update in Existing System – Make Two Research Related To Our System
Examples of accomplishments and clients	Egyptian Ministry Of Health – Egyptian Group – High Tech- Ghaluongui - Lifecare
Company strategic orientation	Invest In IOT And Penetration in Golf Area

Potential Spanish Partners

Partner of Interest
(Please provide a brief summary of the prospective partner company or organization. This summary may address some or all of the points below)



Profile of ideal technology partner	
Core technological competencies and expertise	
Other essential qualifications (e.g.: ownership, track records etc.)	
A list of possible beneficiary governmental agencies can be listed, explaining how they will benefit from the project output.	
If you have a list of companies with whom you are in contact or interested in contacting, please provide contact details	
Please explain in details the reasons behind the need to have a Spanish company in the project and what technologies, research, …etc they can provide that the Egyptian company cannot provide	
If you are interested in collaboration: please specify details and other important information you want to share with a potential company	

Interested areas of collaboration	
Specific R&D contribution you are seeking/offering *Please indicate the research needed to overcome the problems or achieve opportunities.*