

**Search for a Spanish Partner for a
Bilateral R&D Project (this document will be shared with potential Spanish companies)**

Intelligent Mobile-Based Medical Consultations

ESITIP Pre-proposal Submitted to the ITAC Collaborative Research Fund

(IMMC: Intelligent Mobile-Based Medical Consultations)

By

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[Data Management System]

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Egyptian Partners Contacts

Egyptian Academic Partner		Egyptian Company	
Date of Request:			
Academic Entity name:	Kafr ElShekh University	Egyptian Company name:	Data Management System Corp.
Contact person and title/ designation:	Prof. Dr. Osama Abo-Seida	Contact person and title/ designation:	Prof. Dr. Hazem El-Gendy
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Proposal Information

Project overview	
<p><i>(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.)</i></p>	
<p>Abstract</p> <p><i>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 benefit of the proposal to the ICT industry. The third paragraph lists</i></p>	<p>This proposal addresses both New ICT Application that is a mobile based application. Consequently, it is a new technology. Also, it addresses the Health Sector. It also of special benefits to people living in rural areas.</p> <p>The applications brings ICT deeper into the health sector and the living of the people. It builds on the widespread use of mobiles and adds more importance to them.</p> <p>The application delivers to the regular user a mobile-based medical advice and consultation where:</p> <ul style="list-style-type: none"> • Doctors to register themselves with the application after authentication of their qualifications and selection of two levels of participation: On-Line and Off-Line.

<p><i>the specific deliverables of the proposal plan and its duration.</i></p> <p><i>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.</i></p>	<ul style="list-style-type: none"> • Patients to register with the system, upload their medical records, and ask for medical advises. • Collection of fees from Patients and deposit of wages to doctors. • Providing virtual communications between patients and doctors by which the patient gets the medical advice from the doctor. <p>It can work within the borders of the country or crossing the borders of the country.</p>
<p>Proposal Area</p>	<p><u>Strategic Areas:</u></p> <p>Wireless and Cyber Security <input type="checkbox"/></p> <p>Electronics and Embedded Systems for ICT Applications <input type="checkbox"/></p> <p>ICT for Homeland Security <input type="checkbox"/></p> <p>ICT for Transportation <input type="checkbox"/></p> <p>ICT for Health <input checked="" type="checkbox"/></p> <p>ICT for Agriculture <input type="checkbox"/></p> <p>ICT for the Disabled <input type="checkbox"/></p> <p>ICT for Education <input type="checkbox"/></p> <p>ICT for Energy <input type="checkbox"/></p> <p><u>Technology-Trend Areas:</u></p> <p>Mobile Applications and Computing <input checked="" type="checkbox"/></p> <p>Cloud Computing <input type="checkbox"/></p> <p>Data Analytics and Big Data <input type="checkbox"/></p> <p>Internet of Things <input type="checkbox"/></p> <p>Gamification <input type="checkbox"/></p> <p>Cognitive Computing <input type="checkbox"/></p> <p>Smart Machines <input type="checkbox"/></p> <p>Blockchain <input checked="" type="checkbox"/></p> <p>Virtual and Augmented Reality <input type="checkbox"/></p>
<p>Technology Review</p> <p><i>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</i></p>	<p>Health informatics is a very demanding and challenging field. Health standardization and information exchange has always been a challenge and still.</p> <p>The healthcare industry, mobile applications provide better personalized health care, disease management and services to patients and their relatives, as well as a better and flexible way of communicating with physicians, patients and medical suppliers.</p> <p>Patients want to be more connected with their physicians, and that starts with</p>

<p><i>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.</i></p>	<p>quality interactions. Governments are investing in computing and communication technologies to enable physicians and nurses to access electronic health records (EHR) anytime, anywhere in a secured efficient way.</p> <p>Combining mobile technologies with block chain to create a homogenous medical record management platform is a state of the art idea that shall solve the medico - legal aspect of information authenticity and credibility.</p> <p>Clinical trials and the management of trial subject consent are an area where block chain has the potential to increase transparency, auditability and accountability of medical practitioners and researchers.</p> <p>Block chain has significant power to disrupt healthcare and put data in the hands of patients. One particularly interesting move towards this is MedRec,¹ which gives patients and doctors an immutable log of healthcare records. Smart Contracts are used to map Patient-Provider Relationships (PPRs) where the contract shows a list of references detailing the relationships between nodes on the Blockchain. It also puts PPRs in the hands of the patient, giving them the ability to accept, reject, or modify relationships with healthcare providers such as hospitals, insurers, and clinics.</p> <p>Blockchain offers an opportunity for interoperability in healthcare systems as having a decentralized ledger of accepted fact in medical records where all healthcare providers have access to this ledger. This means that though the user-interfaces may be different, their central ledger will be identical across all providers. A challenge that exists relates to the current state of health records across providers, which contain significant amounts of the same information under different identifiers that may not be linked. This creates duplication and as the blockchain grows, the performance degrades and this level of replication of data across records would require deduplication to maintain a reasonably performant system with unique, anonymized identifiers to identify patients across all services. This is a business challenge in and of itself of adopting a blockchain health record, it is important to note that health records would not start from zero as they would have to replace the existing system which creates challenges.</p>
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	<p>The diagram illustrates the blockchain process in six steps:</p> <ol style="list-style-type: none"> A transaction is initiated: A single computer icon. Data is packaged in a "block": A single cube icon. The block is sent to members: A central cube icon with four arrows pointing to four computer icons. Consensus and approval by network: A central cube icon with four arrows pointing to four computer icons. The block is added to the chain: A chain of three cube icons. The update is distributed: A central cube icon with four arrows pointing to four computer icons.
<p>Gap Definition</p> <p><i>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.</i></p>	<p>This solution approaches the most painful issues in healthcare information management; information authenticity and credibility. Blockchain technology provides the infrastructure for an undeniable source of truth while smart contracts guarantees that, contractual terms between healthcare providers and consumers are met in its best ways.</p>
<p>Proof-of-Concept</p> <p><i>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 may be used to present</i></p>	<p>This project builds on a prototype of "Subsidies Mobile Wallet" and a product "DMS Health Hub" that is on Google Store "AWARD WINNING Most Innovative Healthcare Application from WSA 2017".</p> <p>https://play.google.com/store/apps/details?id=apps.dms.com.HealthHub</p> <p>This project builds on the methodologies used in both Subsidies Mobile Wallet and Health Hub of remote accessing databases and provisions of connectivity.</p>

<p><i>relevant results from work published by the applicants, a patent owned by the applicants, or promising preliminary results of the proposed research or methodology.</i></p> <p><i>Details of the technical approaches adopted to obtain such results.</i></p>	
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Egyptian Company Profile

Your Company Profile <i>(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.)</i>	
Business Sector	Shareholding company
Company mission or core functions	Software house operating in Egypt, middle east and Africa specialized in healthcare applications with strong experience in the field.
Date of establishment	1983
Ownership (if public and traded, add stock exchange and ticker symbol)	
Total number of employees	140

Number of employees in R&D	20
Key products sold or services provided	Please, refer to the attached company profile.
Company core technical competences	Software house developing solutions using different technologies; MS.Net, Java, Android, and iOS Apps
Key R&D programs and activities	R&D is the driving force for ensuring that our healthcare solutions are always evolving to meet ever changes business demands. Engaged with Academic Entities to enhance the company abilities to evolve its experience in collaboration with academic staff and enrich products with cutting edge technologies and approaches.
Examples of accomplishments and clients	Please, refer to company profile and reference list. Examples of Egyptian Public Health Sector Projects in 2019: <ul style="list-style-type: none"> - Treatment on state Expense ميكنة خدمات العلاج علي نفقة الدولة - Patient Waiting List Management ميكنة منظومة إدارة قوائم الإنتظار
Company strategic orientation	DMS strategy is to maintain high quality products that expands our customer base. Adopting cutting edge technologies and approaches in healthcare information systems to empower the community in a healthy way. Maintaining a collaborative relationships with different academic entities to ensure the continuity of business advancement.

Potential Spanish Partners

Partner of Interest

(Please provide a brief summary of the prospective partner company or organization. This summary may

<i>address some or all of the points below)</i>	
Profile of ideal technology partner	Corporation with experience in both development of Mobile Applications and in Operations and management of mobile applications.
Core technological competencies and expertise	Security of Data and Blockchain.
Other essential qualifications (e.g.: ownership, track records etc.)	Deployment of mobile applications and its related administrations preferably in the health medical sectors.
A list of possible beneficiary governmental agencies can be listed, explaining how they will benefit from the project output.	The proposed application extends health coverage and quality of health care to many people specially those in rural areas and those suffering from rare diseases.
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	The need for the Spanish Company is needed for both the development of the application and after launching the application in the market. During the development of the application, the Spanish partner is need to be responsible for the security of the data where there is Medical Doctors client base, Patient Client Base, and financial transactions. After launching the product in the market, the Spanish partner is needed to promote the application among Spanish and EU Medical Doctors, assess and validate their credentials and consequently value their consultations, and manage the operations in Spain and EU.

<p>If you are interested in collaboration: please specify details and other important information you want to share with a potential company</p>	<p>Yes, we are interested in collaborations and ready to share more information about the applications with interested companies.</p>
<p>Interested areas of collaboration</p>	<p>Development of the application (Data Security and BlockChain) and management of the operations of the application in EU after launching it in the market.</p>
<p>Specific R&D contribution you are seeking/offering</p> <p><i>Please indicate the research needed to overcome the problems or achieve opportunities.</i></p>	<p>We seek experience in data security and blockchain. We offer experience in development of mobile applications for the health sector and systems for the health sector as well as some experience in blockchain.</p>