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# GLOBAL INTEGRATION IN PORTS





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### The Next-Gen Container Terminals and Internet of Things (IoT) F.M. Mnale, A.B.Eltawil, M.S.Gheith

## **Frobin Mnale**











## Introduction

- Over the Past Three decades Container Terminal operator have been striving to find solutions to problems associated with operational activities
- The growing number of container volume day to day has elevated the complexity of solving these operational problem
- As of 2014, the global shipment maritime shipment increased by 3.4% to 9.84 billions tons (UNCTAD 2015).
- It's expect to grow at annual compound rate of 4.7% by 2020
- Apparently, the role of ports and CT is significant in supporting the immense volume of the world trade





## Introduction

- The global maritime shipments and fleet, especially in developing countries are growing modestly, hence driving down the profitability and competitiveness
- Solving problems in ports is mainly supported by use of Information systems
- Internet of things, is an infant paradigm growing with speed to higher number of systems





## Introduction

- facilitate Intercommunication of subdivision of system to build a digital network
- Device and objects are connected to exchange information
- Mobile application acts as tool to users
- huge amount of data
- This paper explored the automated terminal structure incorporated with an IoT Systems

















- An automated container terminal are characterized by automation of equipment, Device and objects are connected to exchange information
- They incorporate electronic devices in yard, quay, gate systems to allow seamless flow of information
- Large amount of data is processed with less supervision of humans



















- To demonstrate the IoT system, automated terminal deployed sensors, in all operation to be able to track each operations remotely through digital channels
- IoT implemented as a service hub solution, acts as connection between sensors and IT system at backend
- Track information real time, under single integrated method to communicate with all sensor
- A unified connection, eliminate the need to build interface for operations











#### **CURRENT TECHNOLOGIES**













#### **CURRENT ELECTRONIC TECHNOLOGIES**









#### CURRENT ELECTRONIC TECHNOLOGIES

- Provide a reliable service and effective data
- Microwave Tech; track container location by record data during discharging
- Tagging tech; use radio signal to read and record data on containers tags
- Barcode Scanner; pattern recognition in collecting data, significant for customs when vessel are at berth
- Radio frequency Identification RFID; mostly in automated terminals, track status of movement of container





#### SMART PORT













#### FUTURE SMART PORT

#### Smart Port Logistics:

Create value across business networks through SAP's cloud capability







#### FUTURE SMART PORT







#### SMART PORT

- Automation
- Smart Appointment systems
- Smart gate system
- Smart loading /Unloading









#### CONCLUSION

- In conclusion, most of existing technologies explored in this paper are already in application.
- Container terminal Industry players should incorporate more and advanced system to achieve the higher competitiveness meanwhile achieving cost reductions





# THANK YOU SHOUKRAN

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www.ejust.edu.eg



M.Sc. Researcher Frobin Mnale



Dr. Mohamed Gheith



Prof. Amr Eltawil