RS INNOVATORS CHAMPIONSHIP -CHALLENGE 5

EA Dynamics
From THE HONG KONG POLYTECHNIC UNIVERSITY

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WHY WE CHOOSE CHALLENGE 5?

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FACULTY OF
ENGINEERING
工程學院
WHERE CONCEPTS BECOME REALITY

Department of
MECHANICAL ENGINEERING
機械工程學系

Department of
Industrial & Systems Engineering
工業及系統工程學系

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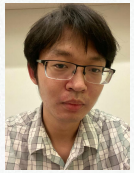
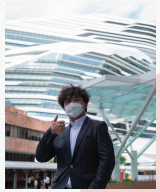
INTRODUCTION OF EA DYNAMICS MEMBERS



WANG Dapeng
Phoenix
ME year3 student
Development of LSTM network

QIU Liuming
Valen
ME year3 student
System Development



CHEN Hongan
ME year3 student
System Design

JIANG Wentao
ME year3 student
Mechanical Design

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INTRODUCTION OF THE PROJECT

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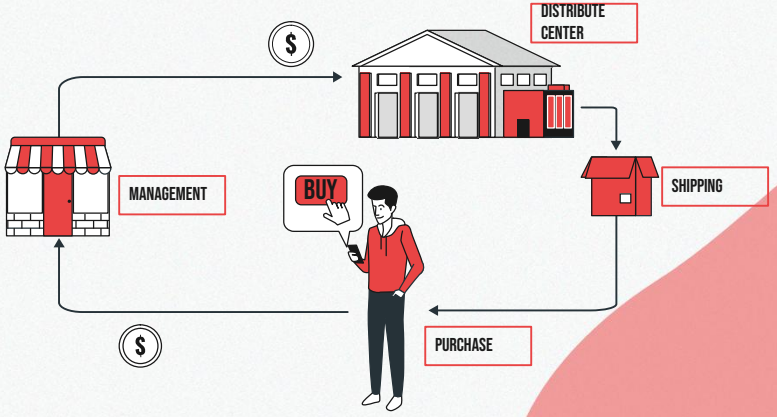
TRADITIONAL PROCESS



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THE CHALLENGE

AMAZON BLACK FRIDAY

100 million products are sold

TMALL DOUBLE 11

21 million products are sold

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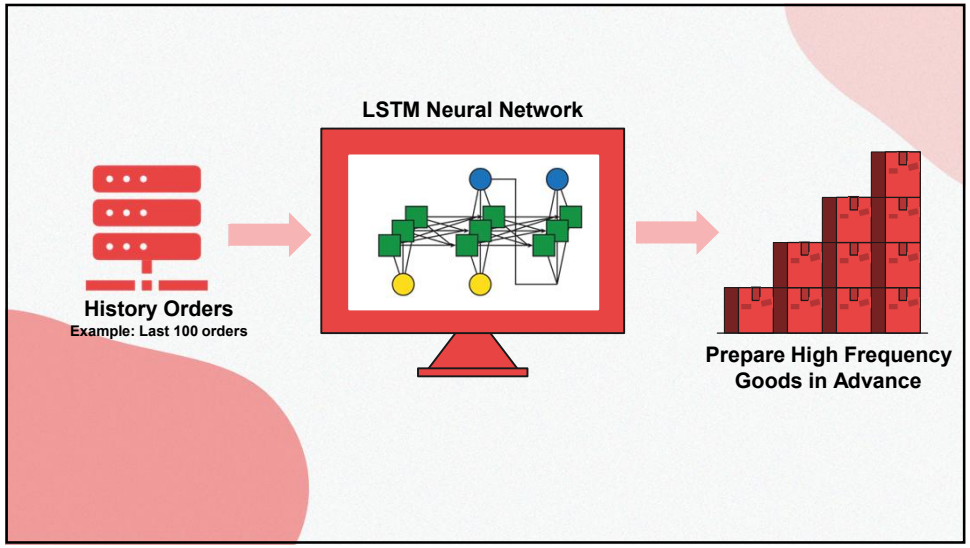
LSTM Neural Network
History Orders
Example: Last 100 orders
Prepare High Frequency Goods in Advance

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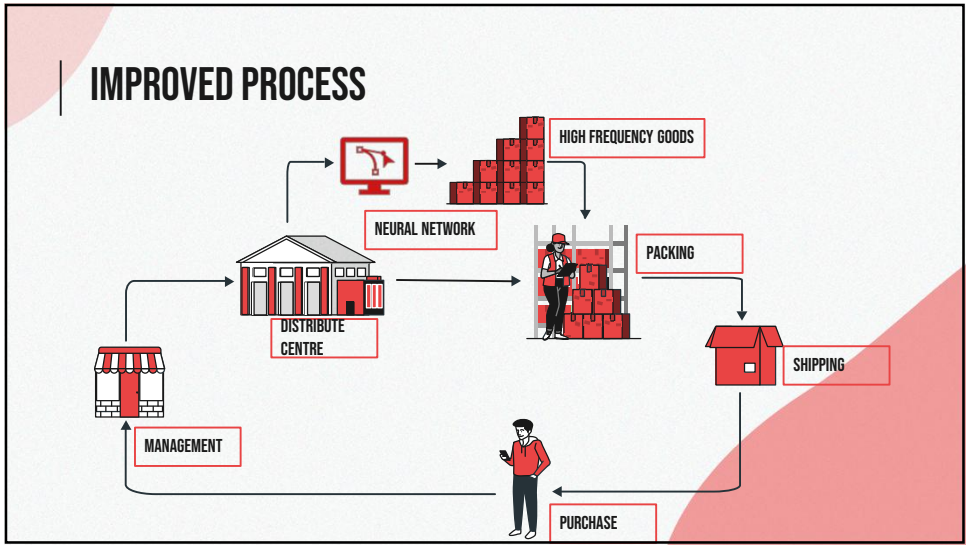
IMPROVED PROCESS
HIGH FREQUENCY GOODS
NEURAL NETWORK
PACKING
DISTRIBUTE CENTRE
SHIPPING
MANAGEMENT
PURCHASE

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APPLICATION OF LSTM NEURAL NETWORK

1. Inspired by the Baniwal and his colleagues (2019 America Control Conference).


An Imitation Learning Approach for Computing Anticipatory Picking Decisions in Retail Distribution Centres

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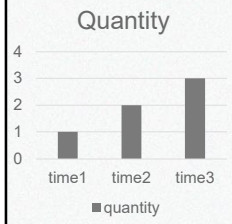
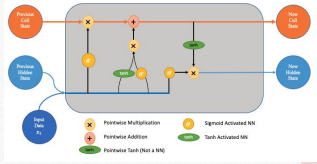
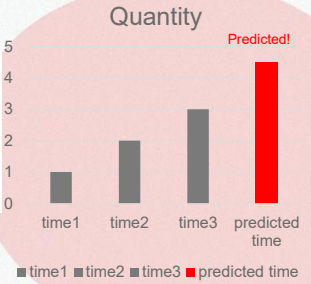
APPLICATION OF LSTM NEURAL NETWORK







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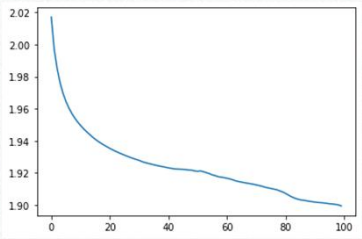
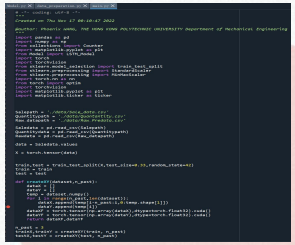
APPLICATION OF LSTM NEURAL NETWORK



Plot of training loss



Capture of code

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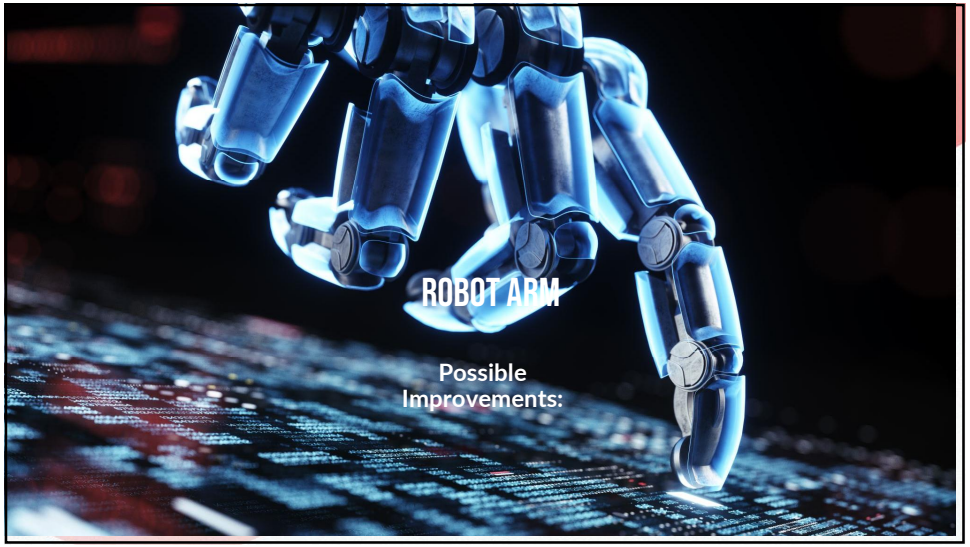

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MORE POWERFUL AND AGILE

1. Carry not only a single good, but also a row of the goods for the package in different situations

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CONCLUSION

AI & Neural Network for prediction & advanced preparation

Innovative design robotics arms for improving efficiency

A team with PASSION & DETERMINATION on improvements!

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