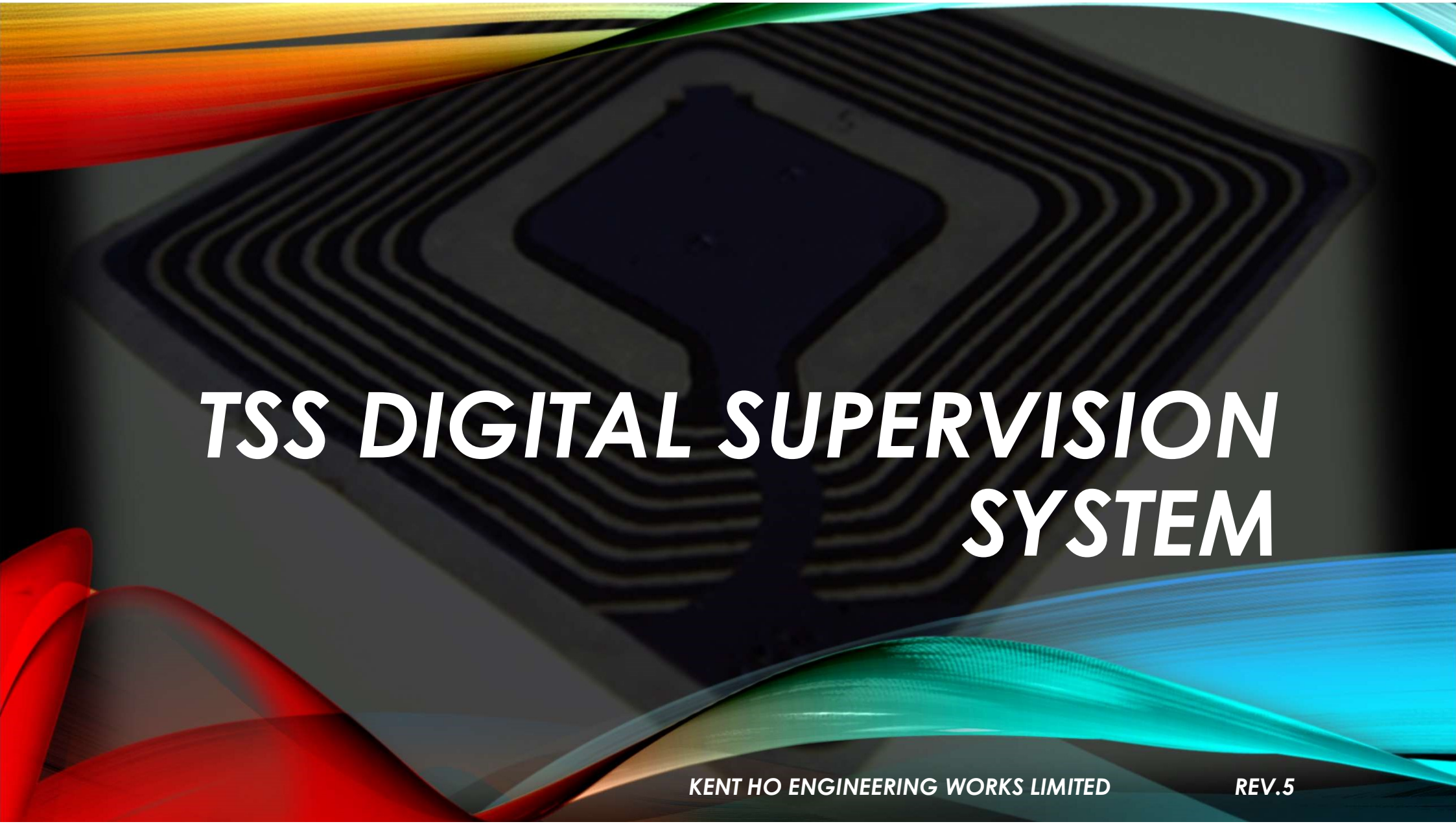


TSS DIGITAL SUPERVISION SYSTEM

KENT HO ENGINEERING WORKS LIMITED REV.5

BACKGROUND

- Recently, owing to many infrastructure construction are progressing, lack of skilled worker and management person to supervise the projects and resulted some adverse issues, it also aroused public concern about the quality of work, safety issues, tarnished the reputation of the construction industry gained over the years.
- In order to enhance the standard and efficiency of work and safety supervision, We developing a digitization of supervision system to assist the supervision process. Pilot projects in CLP Power Station is launched to motivate site supervisors and contractors to use this innovative technology to collect real time data on site environment and work progress for attendance, record, inventory, tracking, monitoring, observation, safety, productivity and analysis purposes.

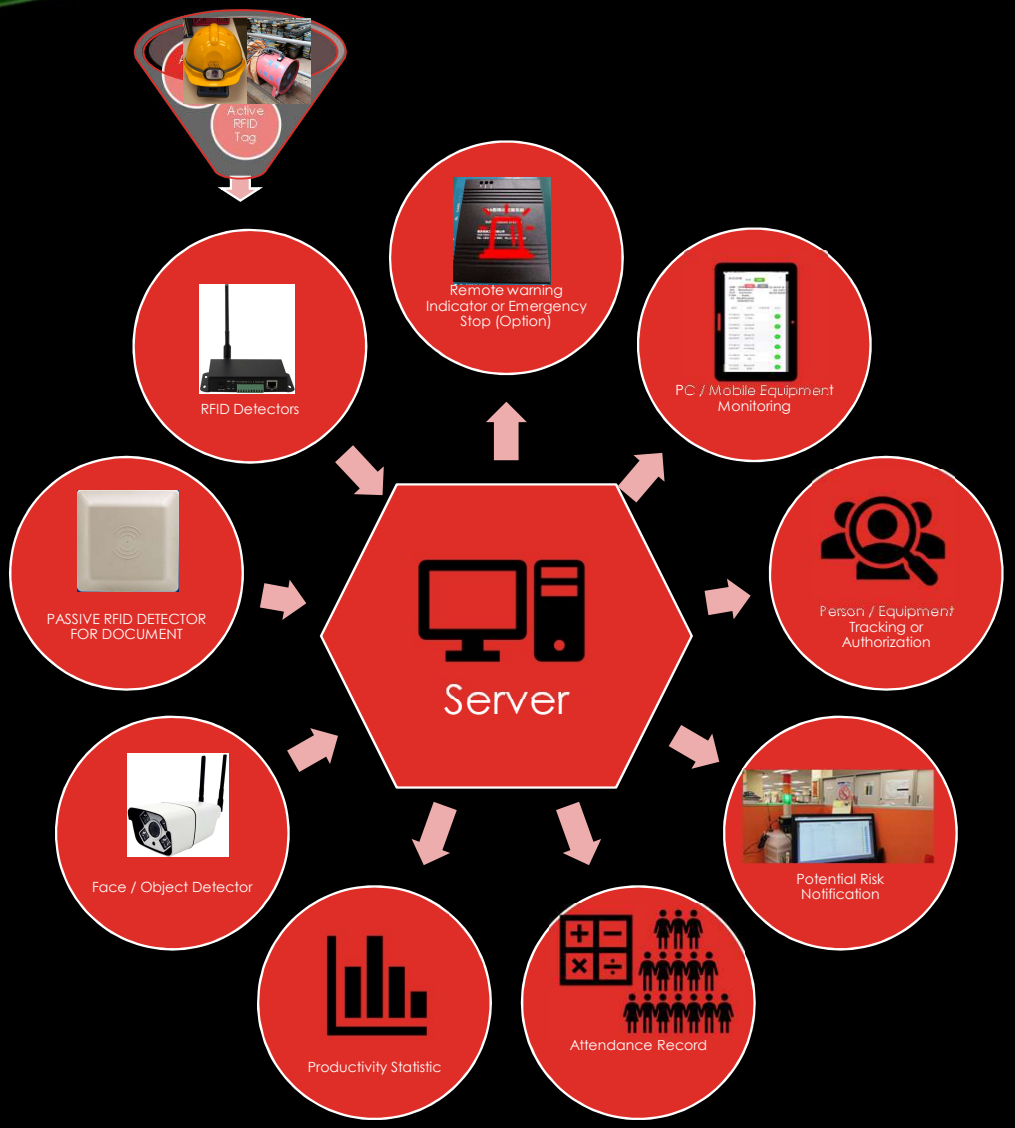
Photos from Internet

OBJECTIVE

- Streamline the work and safety processes
  - Permit to Tag System to streamline the daily work of safety documents
  - Shorten the inspection time prior to Work
- To achieve a higher level of Safety Operational Efficiency
  - To trace employees current risk
  - Record their activity in pass year
  - To ensure employees receiving real-time sufficient protection
  - To ensure the validity of equipment in-use
  - Monitor employee whether equipping appropriate
  - Equipment/Restricted Area Authorization System
  - Alert even stop the machine when person reach dangerous edge
- Improve the quality of work
  - To ensure qualified worker and equipment in place
  - Strengthen roles and responsibilities of various duty holders
- Improve the Productivity
  - Advanced verification for qualification, validity and authorization
  - Reduce the workforce in monitoring process
- Enhance current Inventory management system
  - Establish a data base for valuable equipment
  - Easy to Search the major equipment location
- Attendance record
  - Automatic staff attendance record with excel format output

METHODOLOGY

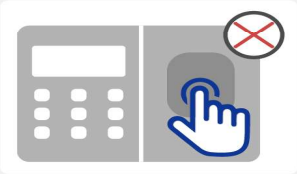
1. Passive RFID tags fix to every worker and equipment in needed, and match to server in advance.
2. Set up RFID detectors, object detector (option) and warning indicator (option) on-site.
3. write a method statement with TSS software, system will generate a code stamp on a passive RFID tags, stick it to Permit / Method Statement and bring along to site;
4. System process on site detecting for the permit/MS, worker and equipment whether it is matched for the particular job;
5. Real-time checking the qualification and validity of worker and equipment;
6. Attendance record will be taken thought RFID tag , and face detector (two step verification);
7. Online Portal to System Notification will generate automatically in PC or Mobile Phone while a penitential risk is detected, e.g.:
   A. Major equipment or worker off site;
   B. Certification expired of lifting equipment;
   C. Worker close to dangerous point (e.g. rotating blade/conveyor/excavator/building edge)
8. Siren signal and stop the machine in emergency.
9. Potential risk notification with instant photo capture with information of worker and equipment.



東承系統·創新管理·簡化操作

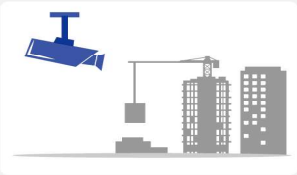
東承系統工程有限公司
TUNG SHING SYSTEM ENGINEERING CO., LTD.

2.自動的出勤紀錄



使用者不用多加管理和控制，自動記錄出勤和計算工資。

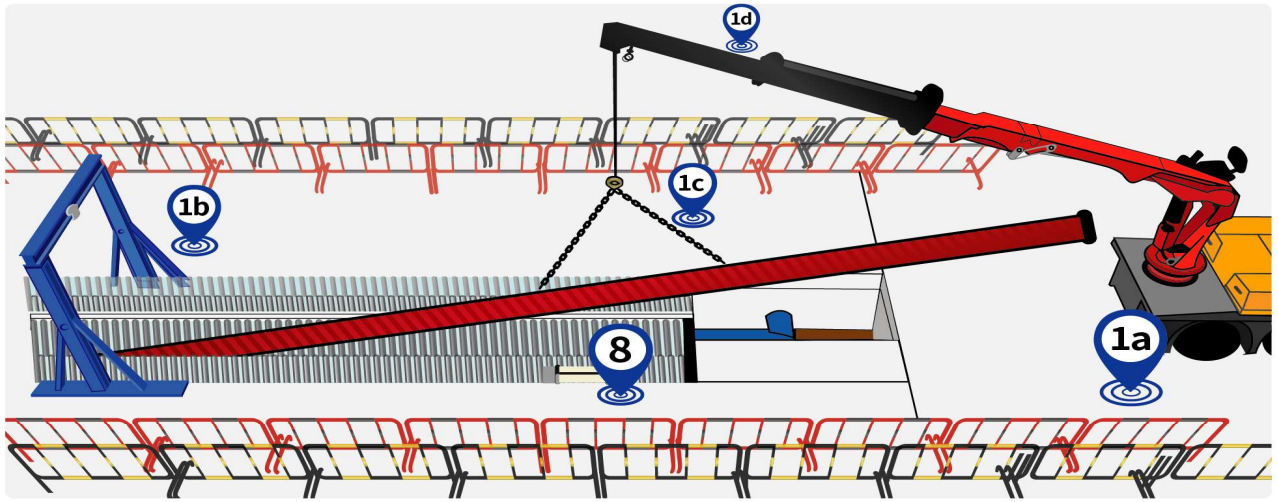
3.遙遠監測



可以無間斷地觀察工地上的狀況，減少安全隱患，在電話上查看人員，工具以及異常狀況，一目了然，更加方便管理。

4.自動製作操作紀錄

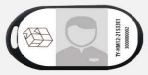
並把所有記錄存在服務器上，隨時查閱最少三年操作記錄，將節省大量時間和儲存空間。



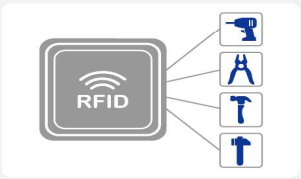
1 **自動檢測是否合資格（人員 / 工具 / 許可證），如果不符合資格，將會發出警報，警報燈將會亮起，並同時通知系統管理者。**

例 :1a. 吊運操作員，曾接受吊運訓練和持有效綠卡。2b. 吊機或龍門架的證書必須有效。
3c. 鐵鏈的負重限制必須大於運載物。 4d. 訊號員在場。

8 **當有任何人錯誤進入危險區域，警報將會發出，警報燈會亮起，並同時通知系統管理者，有需要可令在場機器緊急停機，有效防止重大意外發生。**

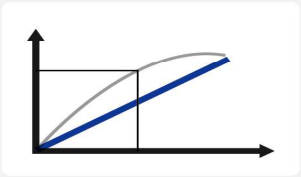
產品參數表	 有源員工標籤	 有源工具標籤	 主動式接收器	 被動式天線	 控制點接收器	 DC12V電池	 識別鏡頭
尺寸(L×W×H)(mm)	65×36×9	38×38×14	145×125×25	227×227×60	105×88×30	124×79×31	230×135×135
環境許可溫度(℃)	-20~60	-20~60	-20~60	-20~60	-10~60	0~45	-25~55
環境許可濕度(%)	5~95	5~95	5~95	20~90	20~95	10~85	20~90
接收範圍(m)	1—40	1—40	1—40	1-5.5	N/A	N/A	N/A
電　　壓(V)	3	3	9~24	12	9~36	12.6	12
消　　耗(w)	0.06	0.06	1.5	0.1	0.24	INPUT:3A MAX	6.25
防 水 等 級	IP56	IP56	——	——	——	——	IP56
重　　量(g)	13	15.2	430	1800	540	729	1000

5.存庫管理



使用 RFID 的技術來偵測並記錄工具以及器材的位置和數量，減少搜尋時間。

6.生產力分析



根據每個工地的經營因素，自動生成圖表，方便使用者就兩個或以上的工地作分析或比較，協助使用者安排人手和資源。

7.限制區域和設備授權

在進入限制區域或使用設備前，系統會自動確實進入者的身份和資格，如有人誤闖區域或使用者未持有與設備相符的有效檢驗證明時，將會發出警報，並同時通知系統管理者。

APPLICATION ON BLOW DOWN COMMON PIPE REPLACEMENT PROJECT

INVESTMENT:
1. ACTIVE TRANSMITTER X 1: $4000
2. CONTROL RECEIVER X 2: $4000
3. ACTIVE TAG X 5: $625

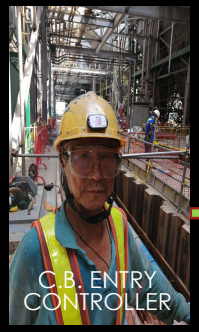
TOTAL (SUPPLY COST) : **$8625**

FUNCTION:
1. PERSON / EQUIPMENT TRACKING
2. VALIDITY CHECK
3. ATTENDANCE RECORDING
4. REMOTE WARNING INDICATOR
5. PC/MOBILE EQUIPMENT MONITORING

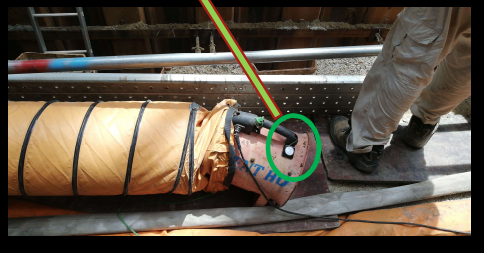
WORKING TIME SAVING:
1. SAFETY SUPERVISOR: 1HR/DAY
2. CLERK : 2HRS/DAY

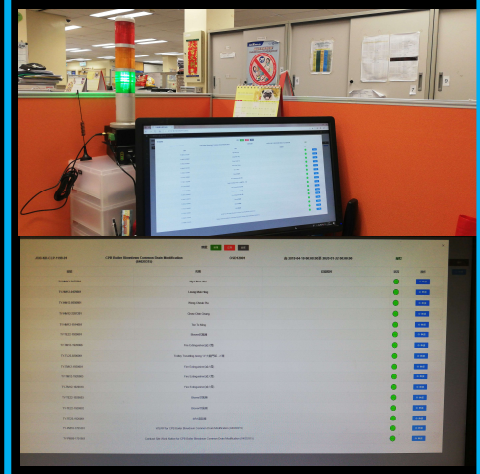
RETURN:
1. ZERO MISTAKE ON VALIDITY CHECK
2. PRODUCTIVITY IMPROVEMENT

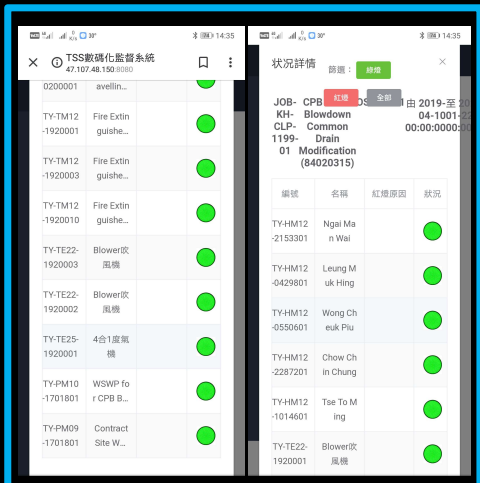

TRANSMITTER & RECEIVER


C.B. ENTRY CONTROLLER


RED ARM BAND



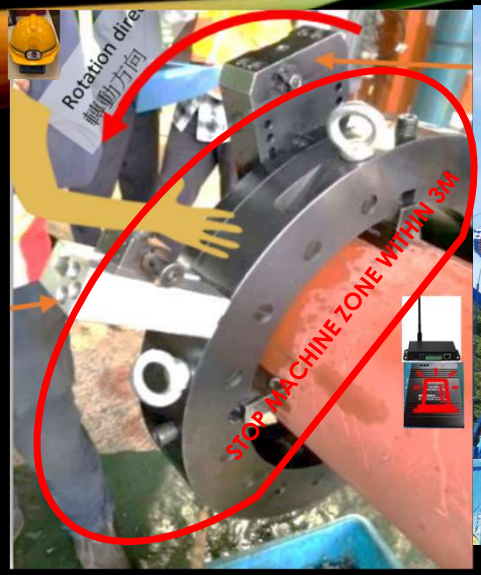

IN OFFICE



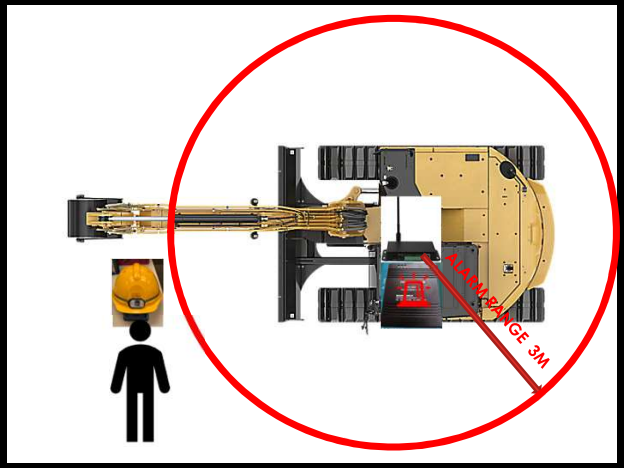
AT ANYWHERE

CASE STUDY


ADJUSTABLE ALARM RANGE
3M TO 40M

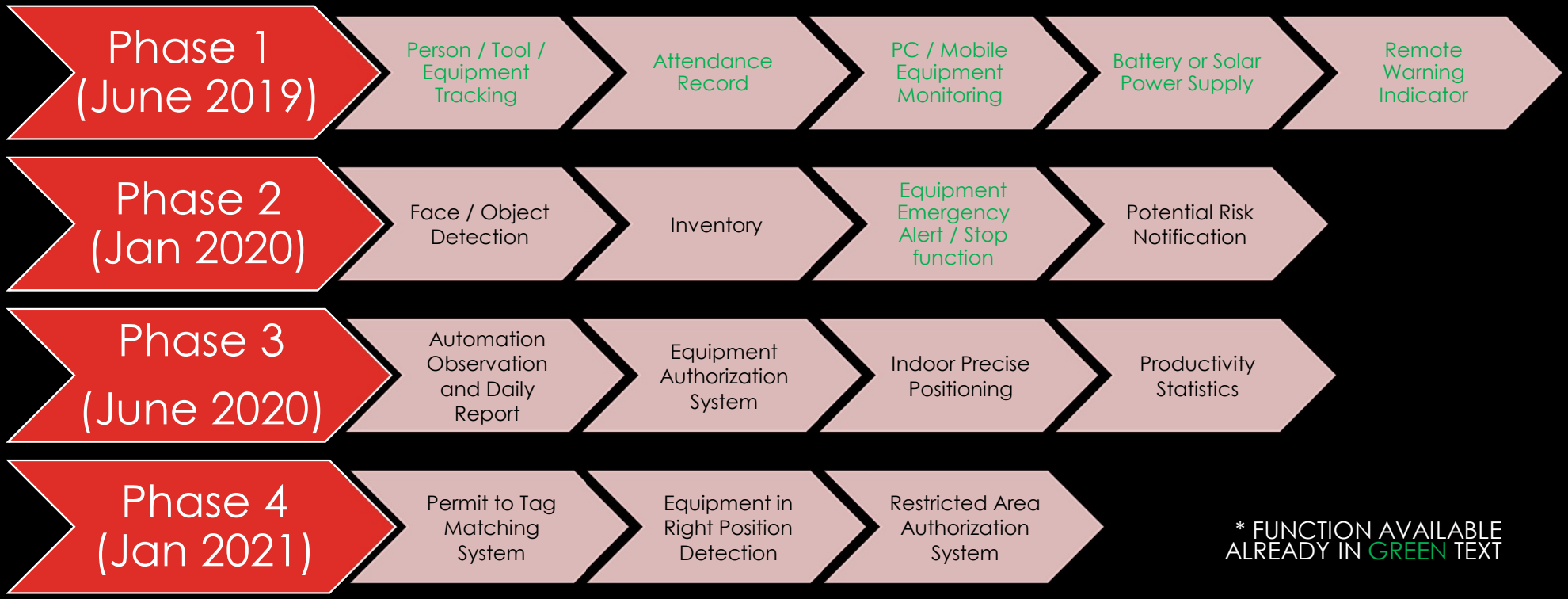

Rotation dire
STOP MACHINE ZONE WITHIN 3M


ALARM AND STOP MACHINE WHILE HOISTING
MATERIAL TOO CLOSE TO CHEERY PICKER


ALARM RANGE 3M

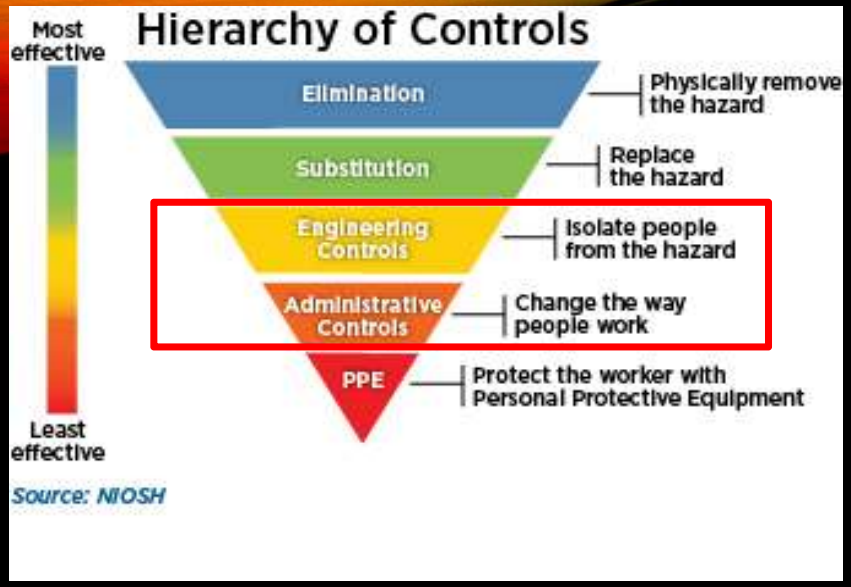

ALARM RANGE 10M

FUNCTION DEVOLOPMENT SCHEDULE



* FUNCTION AVAILABLE ALREADY IN GREEN TEXT

LITERATURE REVIEW WITH CONTROL BY TSS DIGITAL SUPERVISION SYSTEM



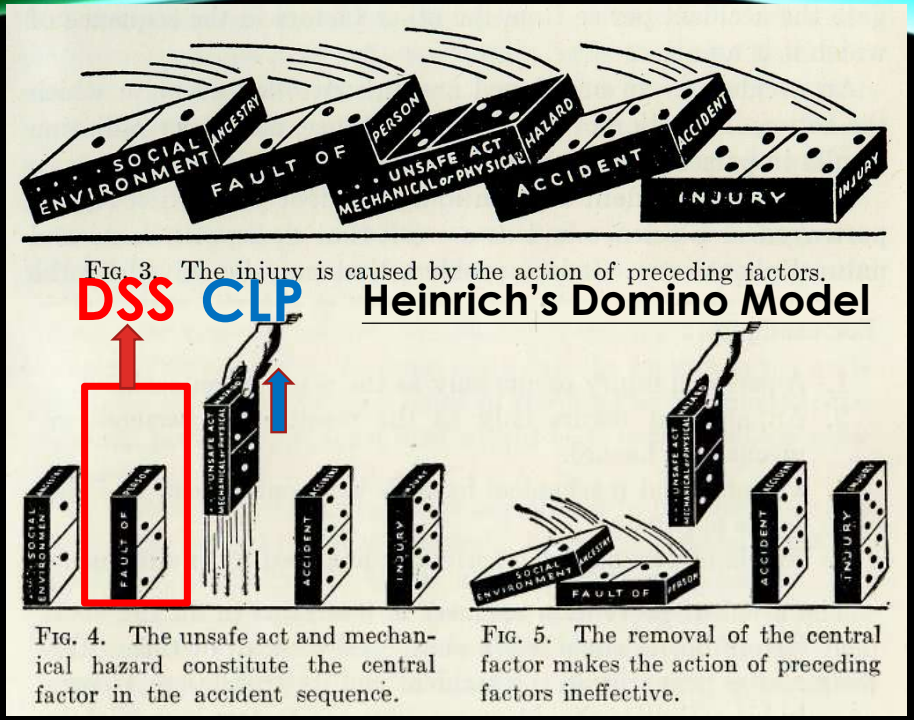
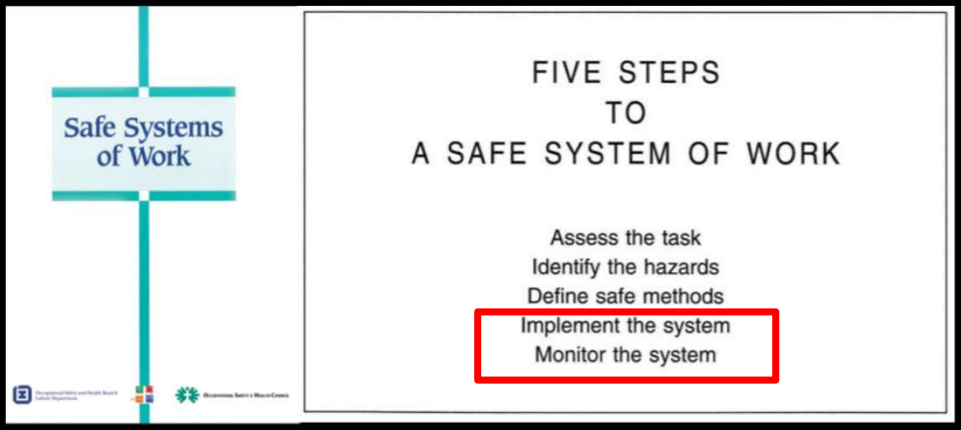


FIG. 3. The injury is caused by the action of preceding factors.

FIG. 4. The unsafe act and mechanical hazard constitute the central factor in the accident sequence.

FIG. 5. The removal of the central factor makes the action of preceding factors ineffective.



THANK YOU

Q & A