

中原大學
工業與系統工程學系

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工業工程實習報告

光寶公司

《Lenovo Tiny4 產能提升專案》

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一、實習動機與目的

在大學三年中，上了許多的必修課，也在其中學到了關於 IE 的專業，而在此也漸漸啟發了對於 IE 的熱忱，也給了我一個一定要實際去產線看看的動機，並希望可以透過實習實際進產線後來了解到我們的所學，加以學習如何將學校所學實際應用在產業上。

二、實習目標

表 1 實習目標

實習目標	具體成果
製造流程	說明 SMT/DIP/Assembly/Packing 製程
IE 工作	說明 IE 相關工作事項
系統操作	說明 SFC 系統
工作研究	執行標準化及方法研究(工作衡量)
改善專案	專案想法之提出、計劃、執行與分析

簡單逛完了一下整個工廠以及車間時，給自己訂了一些目標希望可以在實習結束後完成。廠區裡面有許多關於 PCBA 的製造流程，分為三大部分:SMT、DIP、ASSY，所以希望在實習結束可以有這個能力可以和他人講解這些流程的順序以及如何運作。而這次分配到的部門為 IE 部門，所以也期許自己可以透過實際工作後來對更多人講解目前 IE 工程師的作業內容，而在工廠也會用到一些作業系統，像是 SFC(神傑系統)等，有了這些系統，使得員工要瞭解到產線的產能、良

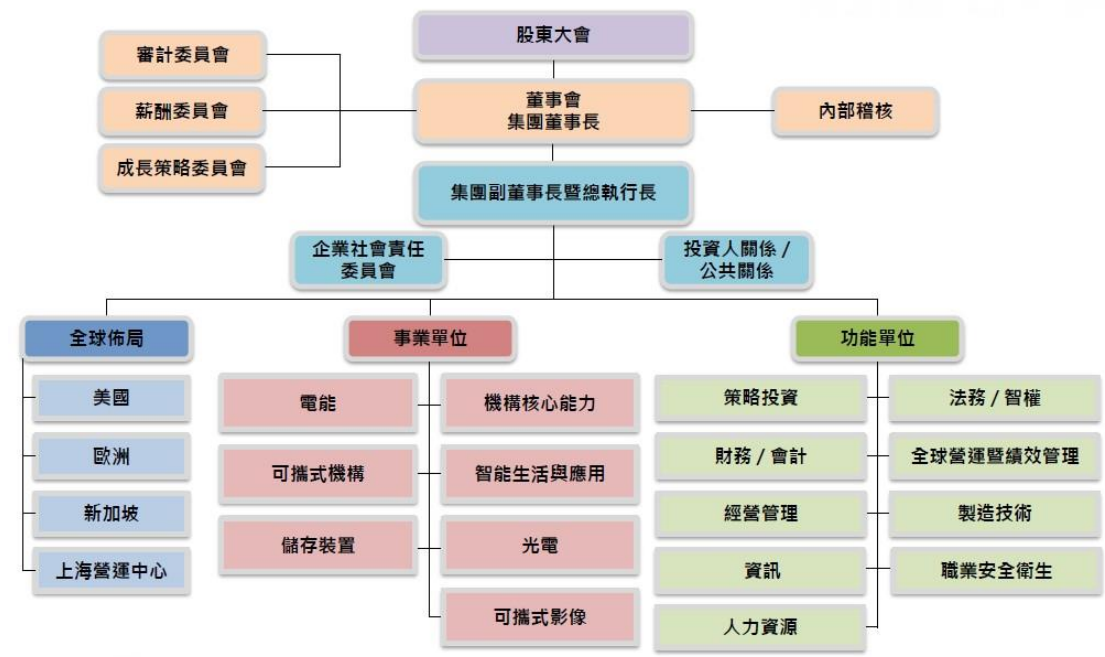
率等都更加方便，所以期待自己可以善加的應用這些系統來提升自己，而最後也希望自己可以將學校所學的專業應用在實際改善上，可以順利做出一份改善專案。

三、公司介紹

3.1 關於光寶

光寶科技股份有限公司（LITE-ON Technology）是台灣第一家上市的電子公司，簡稱光寶科技。最早以 LED 為主要產品，後來開始製造電腦電源供應器，LED、半導體、電腦機殼、影像產品、主機板、DVD 及光碟設備、以及其他電子零組件，以「光電節能、智慧科技最佳夥伴」為願景。

3.2 光寶公司組織圖



光寶總部位於內湖工業區，各廠都有屬於自己的事業部(Business Unit, BU)，

而我所在的廠區為 SS(System Solution)部門，每個事業部都由一個事業部長(BU Head)來管理，而多個事業部則合成一個事業群(Business Group, BG)，而我所在的事業群為機構核心能力(MEC)事業群，每個事業群也都由一個事業群長(BG Head)來進行管理，再將所有事業群合併交由執行長(CEO)來管理。

四、實習廠區介紹

4.1 廠區介紹

G-Pro 為光寶網絡東莞旭福廠，成立於 1999 年，位於東莞市清溪鎮銀湖工業區，公司人數為 1950 人，主要產品為電腦主板，主要製程有 SMT(Surface Mounted Technology)、DIP(Dual In-line Package)和 ASSY(Assembling System)三種。

表 2 廠區介紹

廠區名稱	G-Pro 旭福廠	
成立時間	1999 年	
公司地址	東莞市清溪鎮銀湖工業區	
公司人數	1950 人	
主要製程	SMT(Surface Mounted Technology)	表面貼焊
	DIP(Dual In-line Package)	插件
	ASSY(Assembling System)	組裝



4.2 廠區組織圖

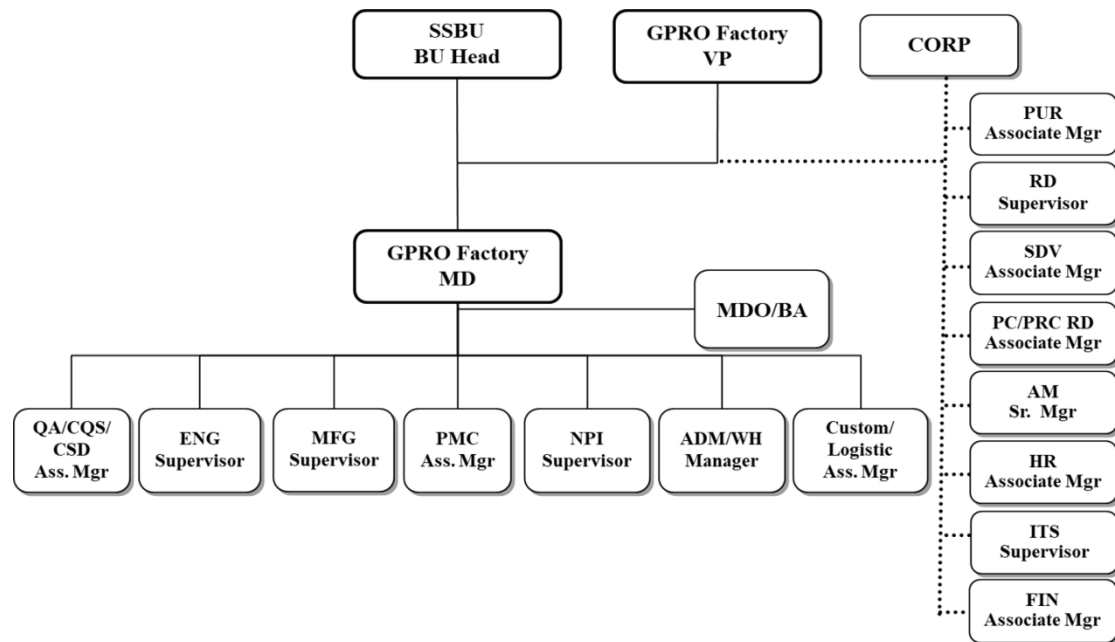


圖 2 廠區組織圖

廠區內則由廠長為首，再來分為多個部門，品管、生管、製造、IE、研發、總務、人資等等，而大多與廠區有關的事物由廠長來進行管理，而人資、研發等少數則歸由總部管理。

4.3 車間 layout 圖

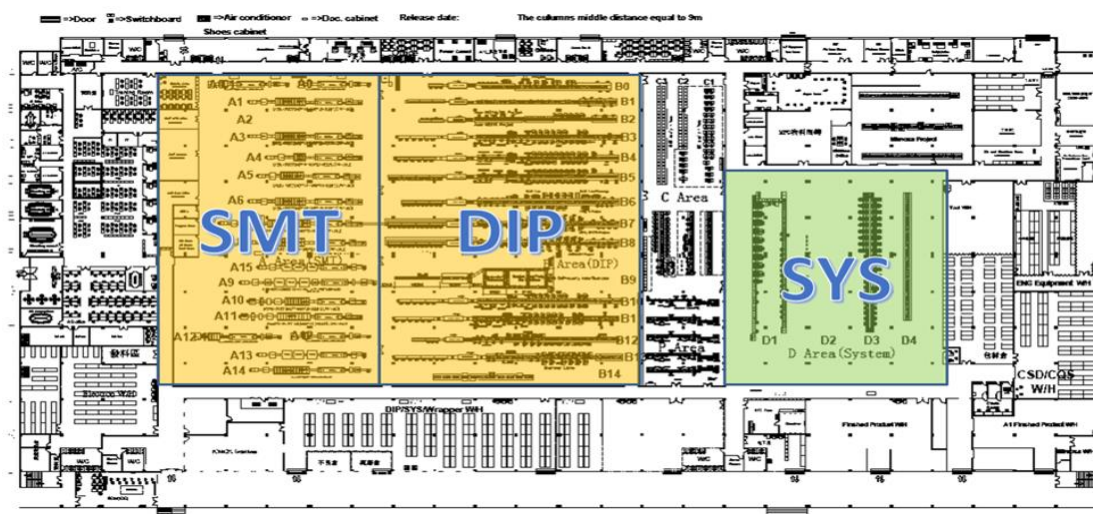


圖 3 layout

工廠的製程主要分成三部分 SMT、DIP、ASSY 依序來進行流程，大多數的電路板都得經過 SMT、DIP 兩步驟，再根據產品的不同來進行組裝以及包裝。

五、實習內容

5.1 實習部門介紹

這次實習所被分配的單位為 **IE 部門**，而 IE 部門在廠區的工作為改善車間裡的每條生產線，像是提高各產線的產能、減少七大浪費的產生、進行 5S 的監督與規劃、提高換線的速度、規劃產線的 layout 等等。而我這次的實習選擇了 Lenovo Tiny 4 的生產線為我的改善生產線，主要目標為提高 Tiny 4 的產能，盡可能的減少產線的作業時間，提高產線平衡率，以及降低產線的各種浪費。

而下圖為公司在開發新產品之後 IE 所需要做的工作。

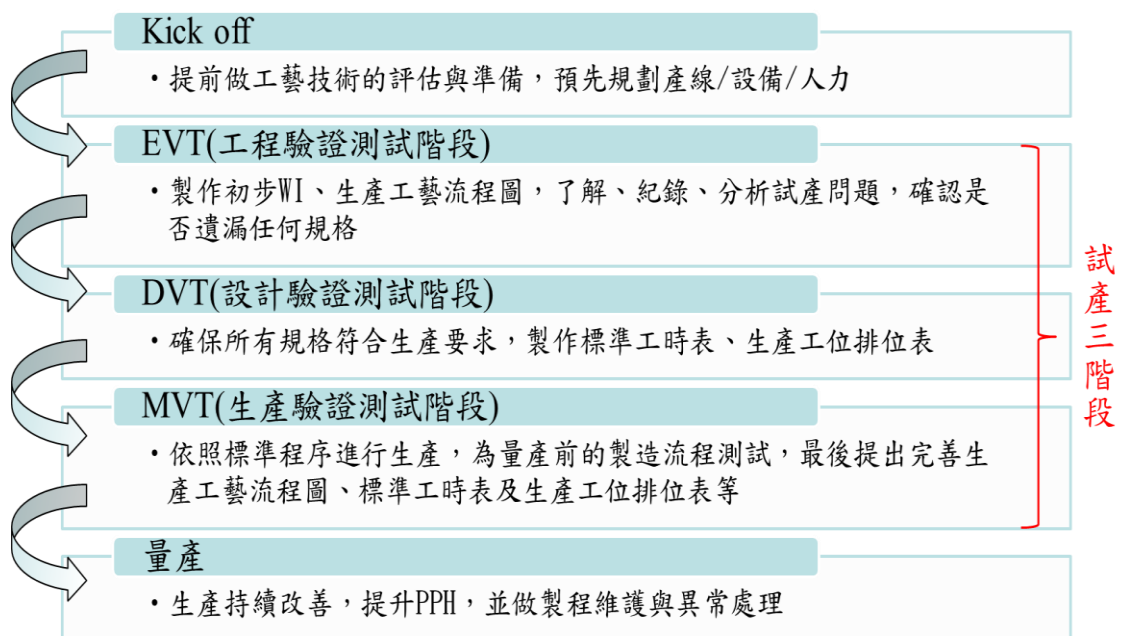


圖 4 IE 試產工作

5.2 流程介紹

5.2.1 SMT 介紹

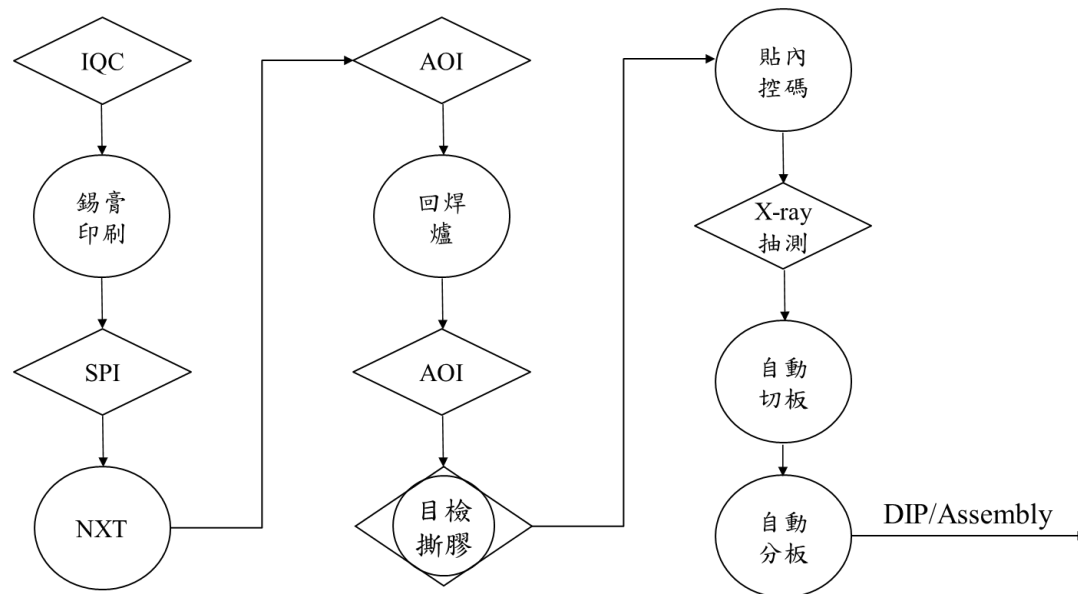


圖 5 SMT 流程圖

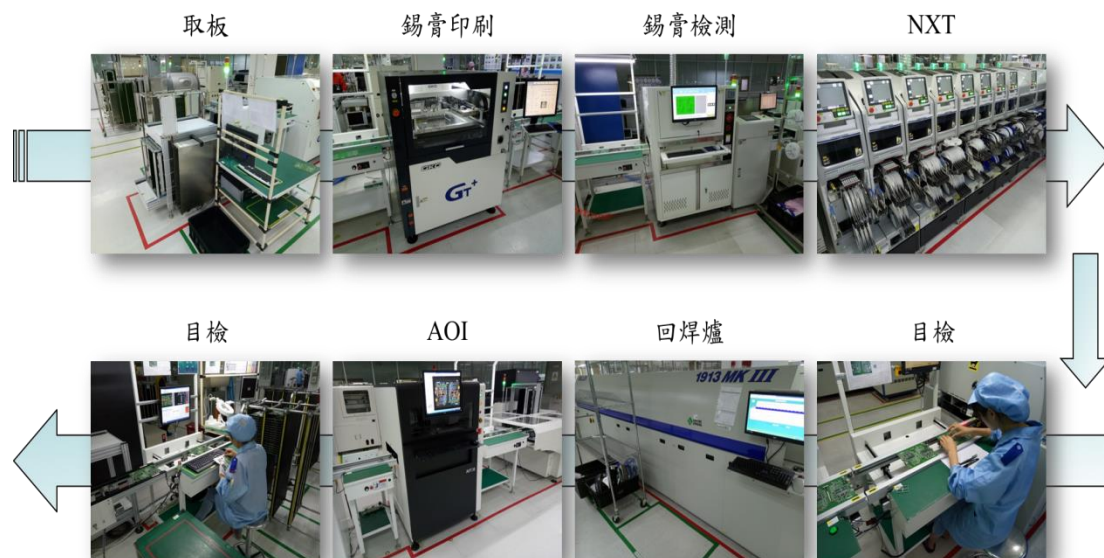


圖 6 SMT 流程

Step1:將電路板(Printed Circuit Board Assembly, PCBA)放置系統中

Step2:將 PCBA 進行錫膏印刷

Step3:進行錫膏檢測，檢測 PCBA 上是否有錫膏印刷不良

Step4:放入 NXT 置件機進行置件的動作

Step5:進行人工目檢，檢查是否有不良

Step6:送入回焊爐進行焊接，將 NXT 所置入的零件與板子黏合

Step7:進行 AOI 智能檢驗有無焊接不良

Step8:透過 AOI 所告知的不良區域，由人員進行補焊的動作

5.2.2 DIP & ASSY 介紹

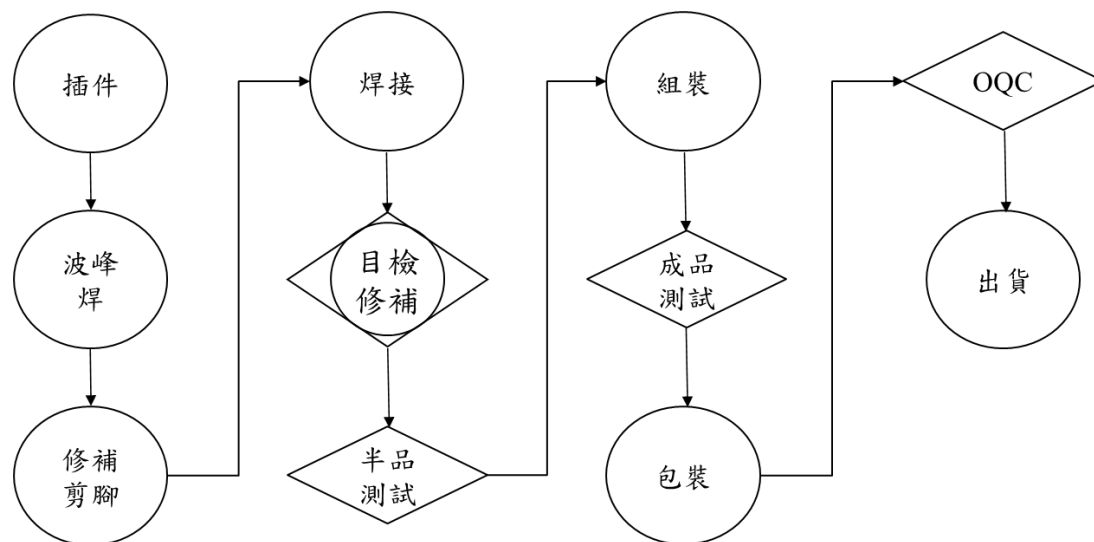


圖 7 DIP & ASSY 流程圖



圖 8 DIP & ASSY 流程

Step1:將 PCBA 進行人工插件

Step2:插件完送入波峰焊，波峰焊是利用波峰原理來將插件與 PCBA 進行焊接

Step3:焊接完由目檢人員進行目檢並進行補焊的動作

Step4:進行半品測試

Step5:測試成功後進行組裝

Step6:組裝完成後進行成品測試

Step7:確認無不良後開始包裝

Step8:秤重裝箱、出貨

六、Tiny 4 改善專案

6.1 產品選定

透過 8 月份訂單量來決定改善專案的產線，由圖 3 可得知 B250 以及 Tiny4

為前兩大高訂單量的產品，但 B250 為另一位同仁所選定之改善產線，為避免互相干擾，因此我選定了第二高產量的 Tiny4 為我的改善產線。而 Tiny4 因為是工廠的主力產品，所以產量大、天天開線，非常適合我們來觀察。

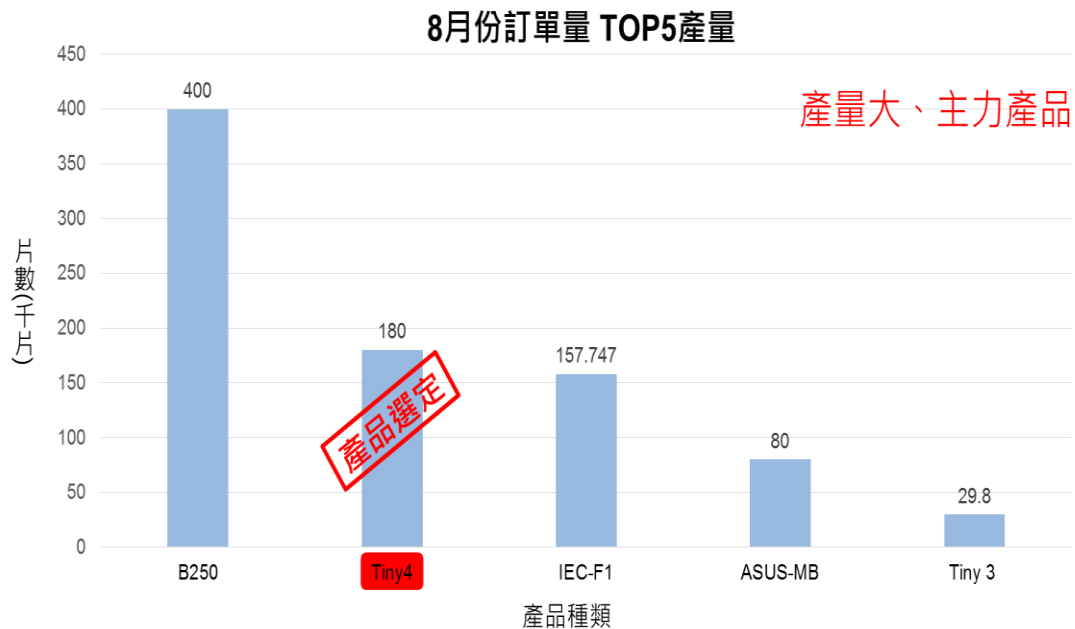


圖 9 8 月份訂單量

6.2 現況把握

6.2.1 產品介紹

產品名稱為 Lenovo Tiny IV，為聯想所推出的第四代超迷你主機，由圖 3 可看出 Tiny4 比現在一般的主機還要小上許多。



圖 10 Tiny4 對比一般主機

6.2.2 每站工時

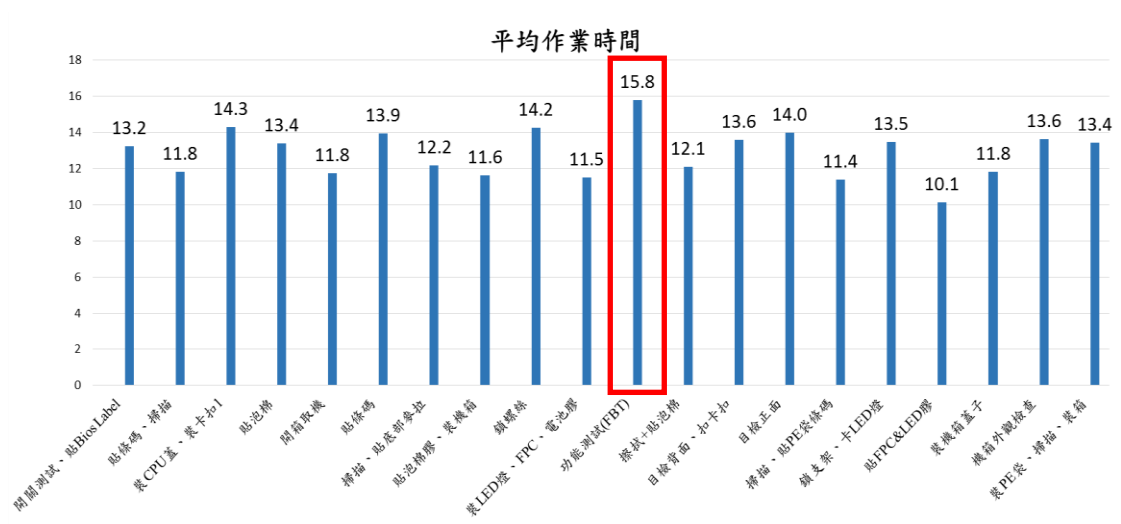


圖 11 各站平均作業工時

圖 4 為各工作站的平均工作時間，樣本為 20 次，**瓶頸站為功能測試(FBT)**，**工時 15.8 秒**。

6.2.3 現況數據

表 3 現況數據

機種	Tiny4 JC113
UPH	219 Pcs/hr
瓶頸時間	15.8(s)
線平衡	81%
PPH	6.26

表 3 為 Tiny4 JC113 機種的現況數據，目前的時均產能(UPH)是每小時 219 片，產線平衡率為 81%，人均產能(PPH)為每小時 6.26 片(UPH 已將 FBT 的良率 0.96 考慮進去)。

6.3 活動計畫之擬定

表 4 活動時程甘特圖

		活動日期										地點
目的	活動內容	Jul. 2017				Aug. 2017						
		第一週	第二週	第三週	第四週	第一週	第二週	第三週	第四週	第五週		
認識旭福廠	瞭解廠區										G-PRO	
決定主題	主題選定										G-PRO	
找出問題	尋找問題										G-PRO	
數據分析	分析數據										G-PRO	
改善問題	推動改善										G-PRO	
監控數據	持續追蹤										G-PRO	
報告	準備報告										G-PRO	

計畫線

實施線

表 3 為這次實習的活動計畫甘特圖，綠色虛線為計畫線，黑色實線為實施線，在主題選定的時候，同時也開始進行的尋找問題，而在之後也開始進行了分析數據，所以表格的實施線才會提前開始。除此之外都按著流程在進行。

6.4 目標設定

表 5 目標設定

對象	聯想 Tiny4 組裝生產線 (D3 線)
問題	觀察產線後，會發現有堆板、閒置的情況發生
時間	Jul.2017-Aug.2017
改善方向	D3 為 U 型生產線， <u>產線平衡率對產能的影響較大</u>
預期目標	產線平衡率：由 81% 提升至 84%
	時均產能(UPH)：由 219 Pcs/hr 提升至 230 Pcs/hr
	人均產能(PPH)：由 6.26 提升至 6.58

透過圖 11 可以知道目前的瓶頸站是功能測試(FBT)15.8 秒的時間，再加上 D3 為 U 型生產線，而產線平衡率對 U 型生產線的產能影響較大，所以將**目標設定為讓瓶頸站的時間降至 15 秒**來提高產線平衡率，而預期的目標是產線平衡率從 81% 提升至 84%，UPH 由 219 提高至 230(UPH 為時均產能，亦指每小時所能產出的量)，PPH 由 6.26 提高至 6.58(PPH 為人均產能，亦指一個人每小時所能生產的量)，估計可將**產能提升 5%**。

6.5 流程介紹

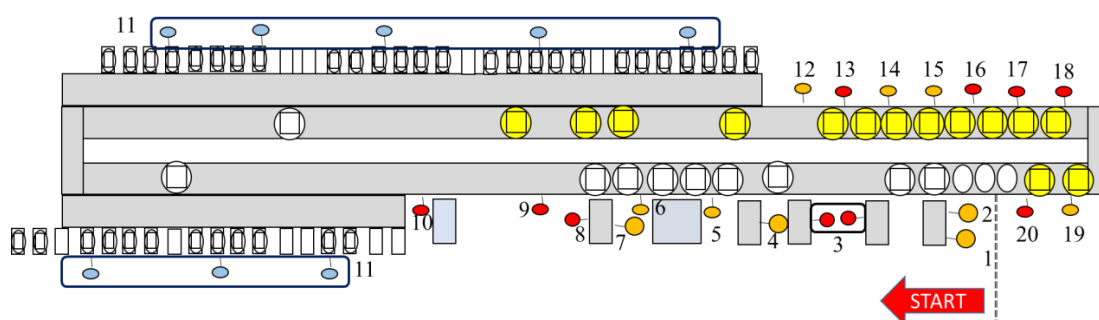
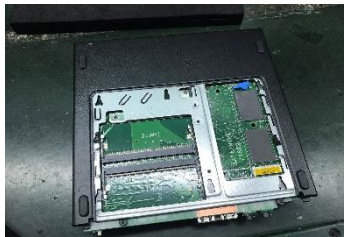
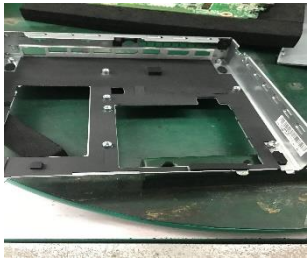


圖 12 D3 線流程示意圖

圖 12 為 D3 線的流程示意圖，橘色圓點代表非增值作業，紅色為增值作業，藍色為機台測試人員，白色圓板為未檢測之 PCBA，黃色為已檢測之 PCBA。

表 6 各工站介紹

1	開關測試、貼標籤		11	功能測試	
2	貼條碼、掃描		12	擦拭、貼泡棉	
3	裝 CPU 蓋		13	目檢背面、扣卡扣	
4	貼泡棉		14	目檢正面	
5	開箱取機		15	掃描、貼 PE 袋條碼	

6	貼條碼		16	鎖支 架、卡 LED 燈	
7	掃描、 貼底部 麥拉		17	貼 FPC &LED 膠	
8	貼泡棉 膠、 裝機箱		18	裝機箱 蓋子	
9	鎖螺絲		19	機箱外 觀檢查	
10	裝 LED 燈、 FPC、 電池膠		20	裝 PE 袋、掃 描、封 箱	

6.6 要因分析

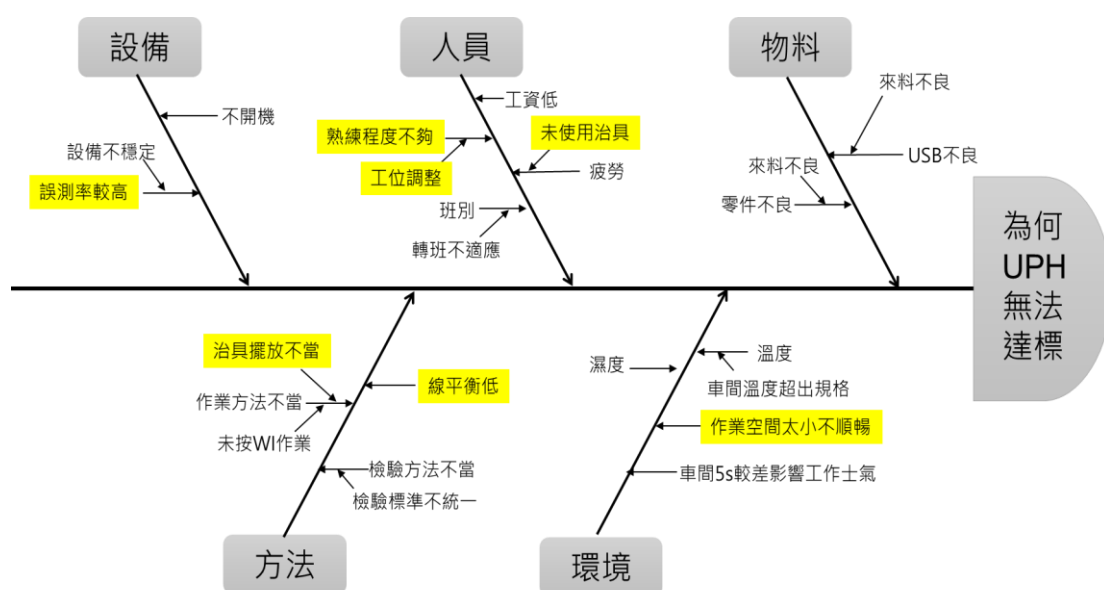


圖 13 魚骨圖

利用要因分析圖去分析為何時均產能無法達到每天所訂製的標準產量後，可以發現大概的問題點分別為設備的物測率高、人員問題的熟練程度不夠、操作方法的治具擺放不當以及環境的作業空間太小導致動作不順暢這幾個因素為要因。

6.7 問題分析

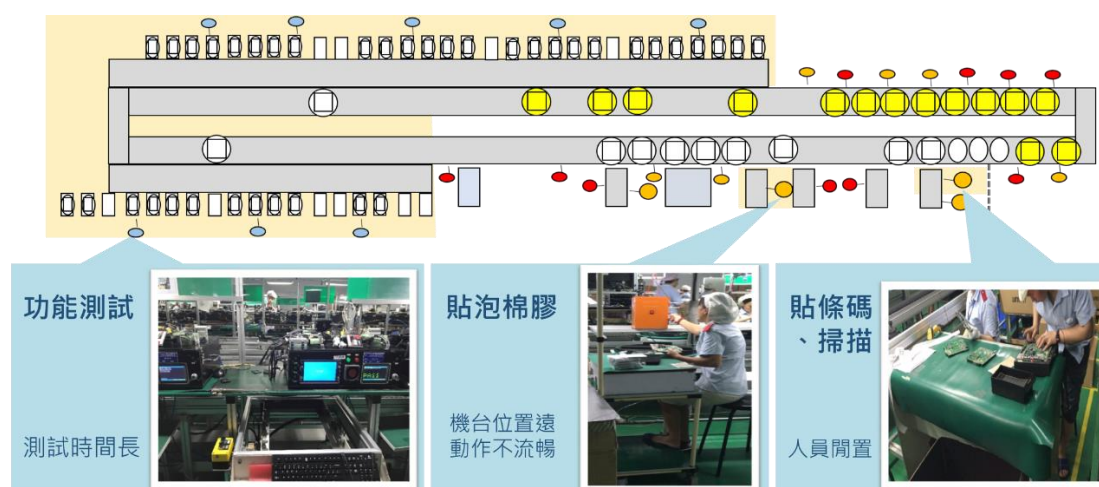


圖 14 產線問題點

而在產線中，可以看到一些問題，而這三個是比較有機會改善的地方。

分別為：

表 7 問題點

#	站別名稱	問題點
1	貼泡棉膠	標籤剝離機過遠導致員工拿取困難
2	貼條碼、掃描	人員有閒置狀況發生
3	功能測試	測試時間長

6.8 貼泡棉膠

6.8.1 問題分析-貼泡棉膠

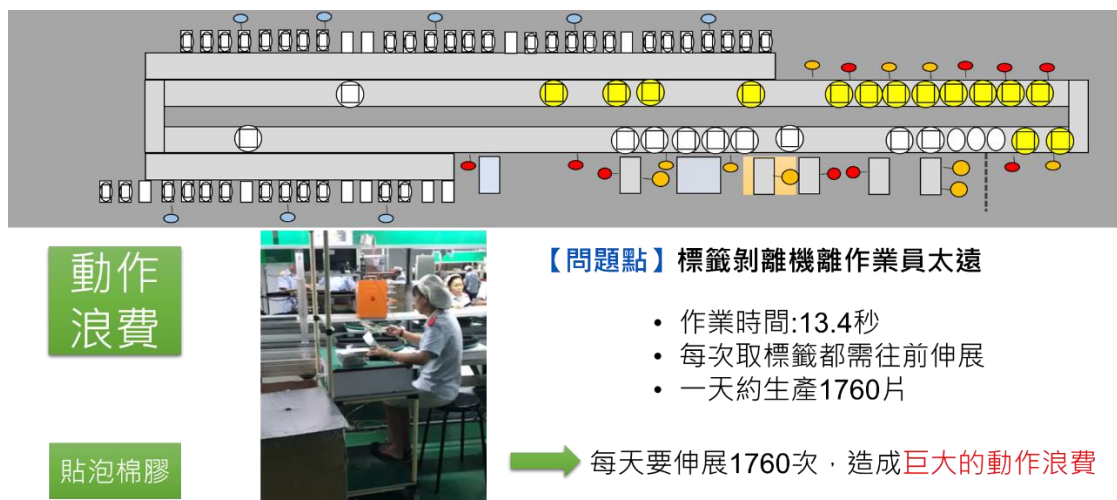


圖 15 問題分析-貼泡棉膠

每當作業員要拿標籤時，因為標籤機距離作業員太遠，就必須伸展後才能拿到，假若一天生產 1760 片，那就代表一天需要伸展 1760 次，如此必會造成巨大的動作浪費。

6.8.2 改善方法-貼泡棉膠

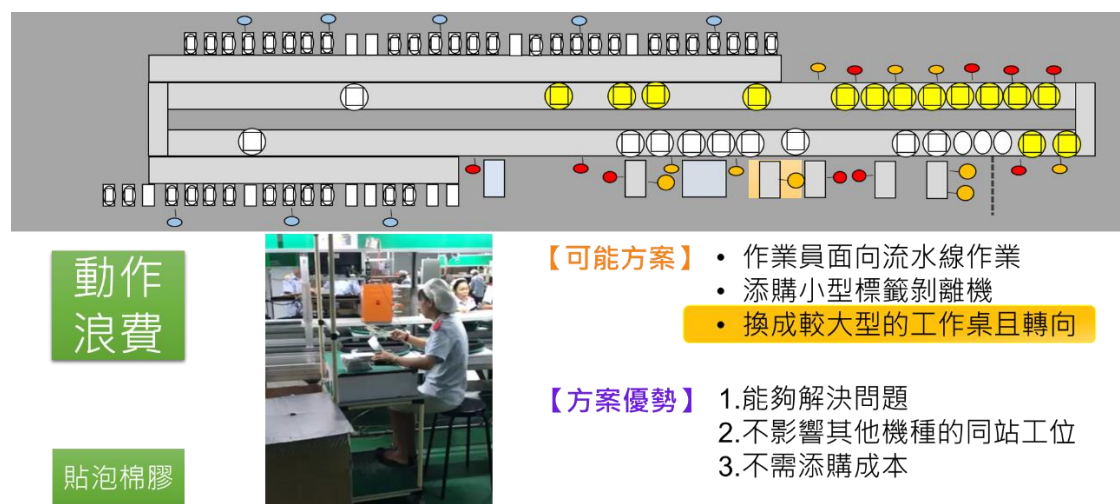


圖 16 改善方法-貼泡棉膠

表 8 貼泡棉膠方案分析

項目	作業員面向流水線作業	添購小型標籤剝離機	換成較大型工作桌且轉向
優點	無須換手、轉身	可保持原狀進行作業	可解決問題且不需採買設備
缺點	會影響到其他機種同站工位	需要採買設備	無法達到減少工時的 最大效益

勝

可能的方案有三種，透過表 7 分析後選定了第三個方案“換成較大型工作桌且轉向”這個方案，此方案不僅可以解決問題，還不會影響到其他機種的同一站工位(一條生產線不會只生產一種產品，所以改了這站會影響到生產其他機種的作業員)，也不需要採購成本，所以選擇了此方案為改善方案。

6.8.3 改善結果-貼泡棉膠

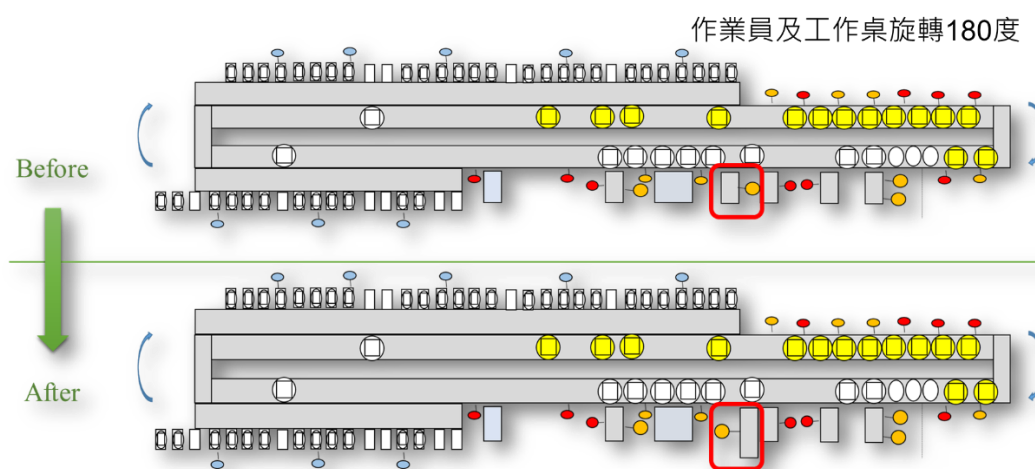


圖 17 改善前後 layout 比較圖

圖 9 為改善前後的 layout 比較，作業員由原本的位置向右轉向了 180 度，且換了較大的工作桌，而為何會需要轉向則會在下面進行說明。

表 9 改善前後-貼泡棉膠

	Before improvement(改善前)	After improvement(改善後)
影片說明		
改善內容	作業員須伸展才能取到標籤	換了較大的工作桌並把標籤機移到桌上
改善效果	改善了作業員伸展取標籤以及換手的動作，作業時間由13.4秒減至12.4秒	

表 8 為改善前後的比較圖，改善前的那個方向，作業員的作業流程為：右手拿取電路板，將電路板換手到左手，再用右手伸展去取標籤，而改善後，作業員的作業方式變為：左手拿取電路板，右手取標籤。可以得知轉向了 180 度之後，可以減少作業員換手的這個動作。改善後作業員不用在伸展取標籤，也少了一個

換手的動作，作業時間由 13.4 秒減至 12.4 秒。

6.9 貼標籤、掃描

6.9.1 問題分析-貼標籤、掃描

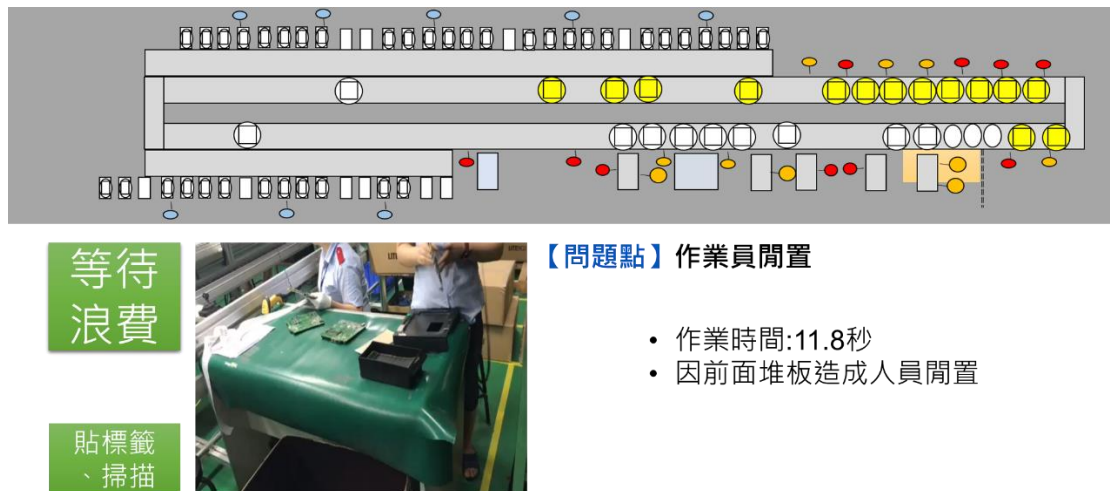


圖 18 問題分析-貼標籤、掃描

每當前面有堆板的問題發生時，就會導致此站沒有板子移動過來而使得此站的作業員手中的 PCBA 沒地方放，而他也因此開始閒置。

6.9.2 改善方法-貼標籤、掃描

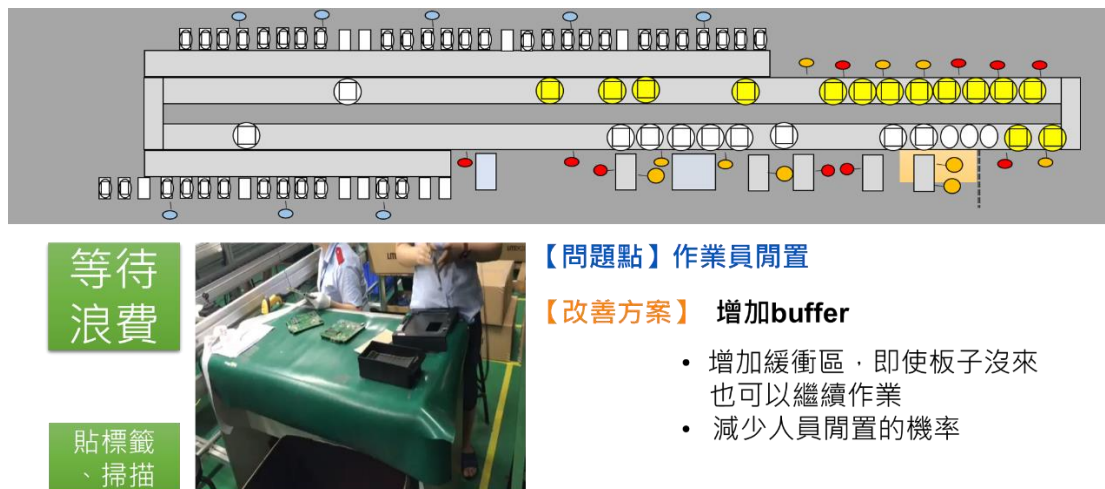


圖 19 改善方法-貼標籤、掃描

改善方法為增加緩衝區，這樣即使前面的板子堆積沒來，此站人員也可繼續作業，將貼完標籤的 PCBA 放置在緩衝區，以利繼續作業。如此不僅減少了此站的閒置時間，也可以使這一工站更加流暢。

6.9.3 改善結果-貼標籤、掃描

表 10 改善前後-貼標籤、掃描

	Before improvement(改善前)	After improvement(改善後)
圖片說明		
改善內容	作業員閒置	增設兩個buffer
改善效果	降低了作業員閒置的機率，提高產線的流暢度	

由表 10 可以看見改善前與改善後的差異，改善前，作業員每當前站堆積而

造成板子沒有過來時，就開始閒置，而改善後添加了兩個 buffer 可以讓作業員減少閒置的機率也可以提高產線的流暢度。

6.10 功能測試

6.10.1 問題分析-功能測試

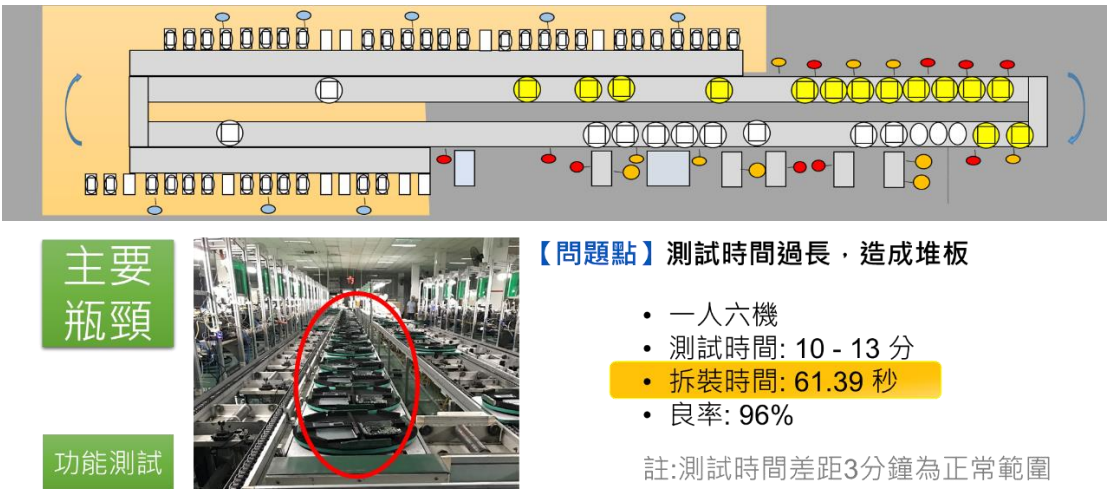


圖 20 問題分析-功能測試

目前功能測試站為一人 6 機共八人 48 機，機台測試的時間為 10~13 分鐘，拆裝的時間為 61.39 秒，目前一人六機為人機分配的最佳分配，而測試時間屬於機台的穩定部分，所以決定從拆裝的部分下手。

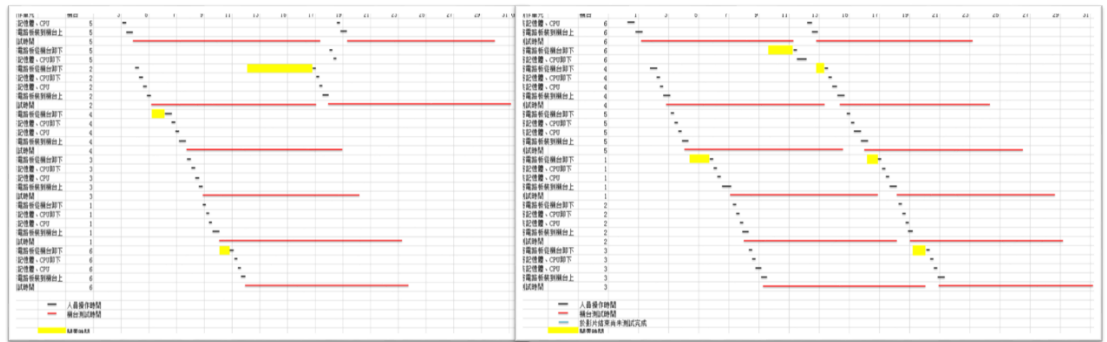


圖 21 為功能測試 113(左圖)、114(右圖)兩種機種的人機分析圖，黑色線為人員操作時間，紅色線為機台測試時間，黃色為人員閒置時間，可以從圖中看到，

不管是哪種機種，在測試的時候都會產生閒置時間，而改善部分則是希望從人員的閒置時間去進行。

6.10.2 改善方式-功能測試

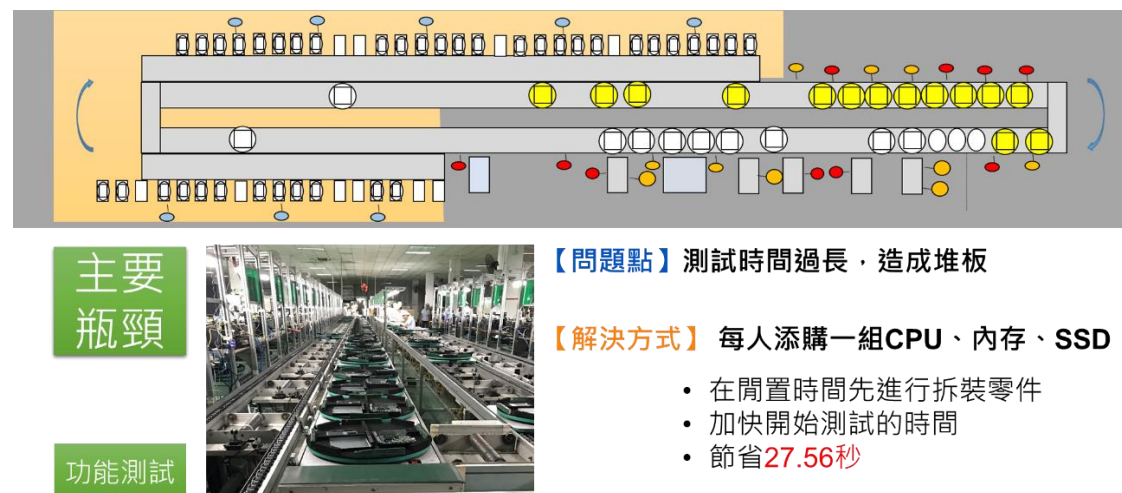


圖 22 改善方式-功能測試

解決方式為每人添購一組 CPU、內存、SSD，並且利用人員的閒置時間進行拆裝零件，如此可以加快開始測試的時間還可以省下拆裝時間的 27.56 秒。

6.10.3 效益分析-功能測試

	ACT	Jul'2017
	UTS	180,000
改善前	PPH	6.26
	工作時間 (hrs)	28,753.99
改善後	PPH	6.51
	工作時間 (hrs)	27,649.77
節省時間(hrs)		1,104.22
員工時薪(RMB)		22.40
省下金額(RMB)		24,734.62

【效益分析】

- 每人添購一組零件 共8人
 - 8組零件約18,926 RMB
 - 改善後一個月可省下 24,735 RMB
 - 約 **24** 天 可回本
 - 一年約可省下 **277,897** RMB
- 註:已扣除零件成本

【計算方式】

Step1: $UTS/PPH = \text{所需工作時間}$
 Step2: 算出改善前後的節省時間
 Step3: $\text{節省時間} * \text{員工時薪} = \text{省下金額}$

圖 23 效益分析-功能測試

計算方式為將 7 月份的預估需求量 180K 除上 PPH 可以得到改善前以及改善

後所需要的時間，將其相減可得到減省時間，再將其乘上員工時薪可以得到省下的金額 **24735RMB**。

而每個人都添購一組零件，共八個人，需要八組零件，約 18926RMB，大約 **24 天後可以回本**，一年扣掉零件成本後約可省下 **277897RMB**。

6.11 專案成果

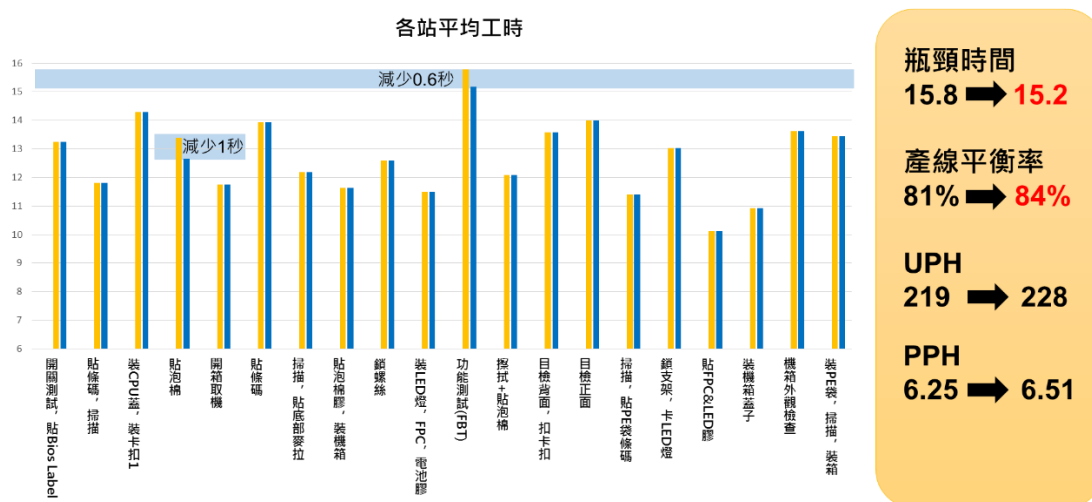


圖 24 專案成果

經過了以上的三個改善，瓶頸時間從 **15.8 降至 15.2**，產線平衡率由 **81% 提高至 84%**，UPH 由 219 Pcs/hr 提升至 228 Pcs/hr，PPH 則由 6.25 提高至 6.51。

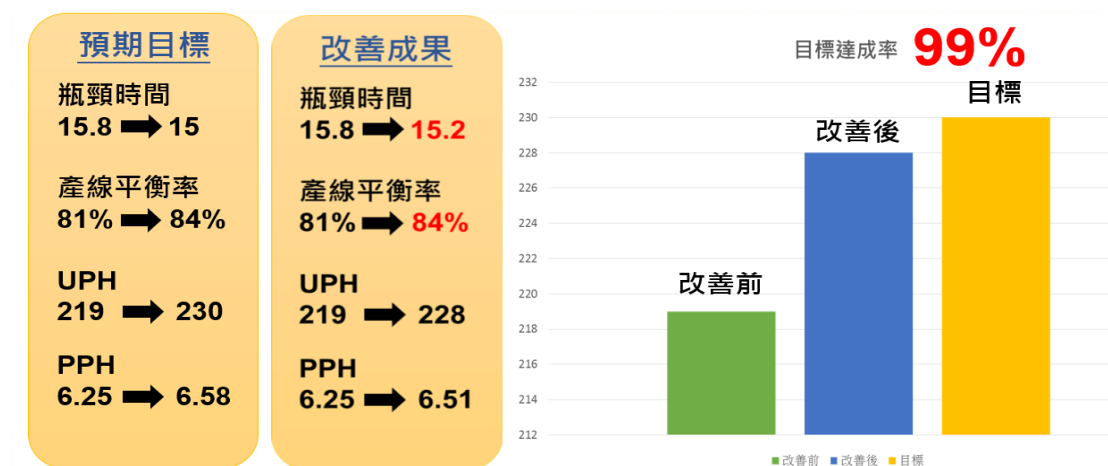


圖 25 目標達成率

根據之前所設定的目標來看，改善後的成果距離目標達成率高達 99%。

七、實習心得

很開心可以參加這次的光寶海外實習，讓我有這個機會到清溪旭福廠，也讓我有了這個機會做改善專案。首先，要先感謝廠長 Allen 以及 Terry、Cucky、Vicar、Koss 這兩個月來的協助，如果沒有他們的指教，我想這次的專案會做得很辛苦。他們讓原本什麼都不會的我變成了如今有一點實戰經驗的大學生，而也因為這次的實習，讓我真正的進入了工廠實施改善，從剛開始的懵懵懂懂，到現在的熟能生巧，都是一大進步，也真正瞭解到實施改善的過程以及困難，不僅要有合理的數據來證明，也還要有辦法說服他人來接受這個改善，這對我來說都是一大進步。也因為這次的實習，讓我有機會可以到華南地區去體驗當地的文化生活，廣州、深圳、香港、澳門這些很常聽到的城市，我都很幸運的有去探訪過，大城市的進步讓人吃驚，當然物價也讓人退避三舍，不過最後都還是難敵食物的慾望而下手了。最有趣的是每個地區的人，竟然都會有些許差異，但很幸運的，大多數的人對我們都是很熱情、友善的，讓我覺得這幾趟的旅程真的是玩得很開心。下次若有機會，我想我會繼續去別的地方走走看看。而在實習的這八周內每周都記錄下了自己的心路歷程，希望在未來可以讓自己有一個很好的回憶。

光寶實習週記 第一週 2017/7/8

In this week, one of the things that make me the most accomplished is completely stroll the workshop. This is my first experience that go to the workshop and detailed understand of the entire production process. In the past time, although we visited a lot of factory, we didn't entry into the workshop. Accordingly, I am very satisfied with this matter. Then, the second thing is chatting with the Chinese people. I tried to communicate with them though only short chatting. Fortunately, they gave me the response, but they are not as passion as the people of Taiwan. Finally, the third thing is I have finished this weekly diary with English. This is also the first time I write the detail things in English.

The most difficult things are understanding the meaning of the Chinese people to speak, finding a station to improve it effectively and overcoming the noisy environment. First, although Taiwan and Chinese people use the same language, I don't understand their means. Our vocabulary is different from their and there are different tones, culture etc. These things cause us to communicate badly. Second, based on the basic understanding of the product process, I thought that finding the problem to improve is very easy. But, in fact it is very difficult. Due to the lack of experience, making this thing difficult. Third, When I work in my office, I can always hear the voice of other people talking. It make me distracted and hard to finish my job. Therefore, I need to conquer it because it is their living habit.

In the next week, I expect myself to finish three things. They are finding the goal of improvement, Familiar with the production line operator, and keep my passion for this project.

光寶實習週記 第二週 2017/7/14

The three most satisfying things:

1. During this week, I got the direction of my improvement project by communicated with operators and IE engineers. Although my project is still far from complete, it was the best start for me.
2. I found some problems in production line but they are not the bottleneck, I tried to propose my opinions. Fortunately, it seems acceptable. I am very satisfied whether it will succeed in the end or not.
3. I finished my production process PowerPoint. It took me about two hours because it had a lot of animations. After finishing it, I felt very satisfied.

Three most difficult things:

1. In my improvement project, I found a lot of problems but they are not the bottleneck. This is very troubling for me. Because it is not the most effective method I have learned.
2. In my production line, bottleneck is very busy and I have no idea to find a better way to improve it than now. This is the most difficult thing at the moment.
3. Breakfast is the most important meal in one day. Unfortunately, the breakfast in Taiwan and China is very different. It is hard to change my eating habit in a short time.

Three things to do next week:

1. The improvement methods for those problems have been fully presented in the PowerPoint.
2. Continue to look for ways to improve the bottleneck.
3. I expect myself could keep learning the major of industrial engineering.

The three most satisfying things:

1. I found a way to improve the bottleneck. This method could make this workstation reduce the motion waste. But, I don't know whether this way is effective or not.
2. By talking with other colleagues in G-com, inspired me to different ideas for improvement. By thinking in different angle, I found another problem and tried to improve it.
3. I got more and more knowledge about IE with the direction of engineers. It make me more and more strong in IE and make me more impressed with what I learned in university.

Three most difficult things:

1. It very difficult to talk with line leader. She looks like a cold person and seems to be very busy so I hard to chat with her. It made me a little frustrated.
2. It is confusing me that why do so many idle and piled up occur in different workstation. It's so strange because it usually happens at the bottleneck in books.
3. Improvement is very difficult. It need to consider the cost, effective, benefit, humanity etc. and lots of inexplicable things. It cause many of my ideas to be rejected.

Three things to do next week:

1. I wish I could find an improvement way which is efficient to increase the efficiency of production line.
2. Continuous observation of production line and keep the idea that there is always a better way.
3. Doing my best to keep finding the problem and trying to improve it to make the factory better and better.

The three most satisfying things:

1. I chose the FBT (Functional Board Test) station as my improvement program. It is a challenge to me. In general, most of the IE engineer who is inexperienced will choose the simple method like as motion improvement.
2. Because of this project, I learned a lot of skills like as IE 7 tools. It has been learned in school, but I have never actually used it. This project greatly enhances my IE expertise.
3. Due to the project needs, I collected the numerous data and did an analysis on the man-machine diagram trying to find a place to improve. It is a cool thing because this is my first time to draw the man-machine diagram.

Three most difficult things:

1. To improve the FBT station, I need to spend a lot of time to collect data. I also need to analyze why it will be idle and how long it will be happen. According to these data to find way to reduce the test time of these machines.
2. I have to understand the details of the test machine. It will make me have the probability to improvement without buying the parts and it will be a challenge to me because it's not my good at it.
3. I think that improvement is more and more difficult by the growth of automatic machine. Because of the lack of knowledge, we face the improvement of the restrictions.

Three things to do next week:

1. I hope I could statistic the data of FBT completely in next week. It will make me easier to finish my project.
2. Continue to discuss with IE manager, Koss, and keep absorbing new knowledge from him.
3. Understanding the detail information of test machine, it may make me have a greater breakthrough in improvement.

The three most satisfying things:

1. As time went by, I become more and more familiar with company. I realize how to do my improvement project and how to execute it by instruction of IE manage.
2. I getting more and more understanding of how the company makes presentations, through weekly reports, as well as the teachings of Cucky, Terry and Vicar. Because of their teaching, I think my project is going well.
3. Luckily, I've found the second problem that can be improved. This makes me more confident in the improvement. I deeply know that I can do it and that is not an impossible thing.

Three most difficult things:

1. The way of presentation in university is different from company and this is the most important thing I have to conquer because I think the skill of presentation is an extremely important ability. That is the only way to express your ideas.
2. I need to learn how to break my mind. I think that will inspire me a lot of ideas and I will have more chance to find the problem that could be improved. But breakthroughs are very different. So, it's I need to learn.
3. I found that my oral presentation was not so smooth at the time of presentation. Maybe it because of nervous or unfamiliar with the content. So, I thought I need to keep training the skill of oral expression.

Three things to do next week:

1. I have to keep revising my presentation to make it more and more perfect and make this PPT look beautiful.
2. I think I could find the third problem that could be improved. Accordingly, I decide to try to find the problem.
3. I think I need to record the detail things that happened in July on word. I consider it will make me have a good memory in future.

The three most satisfying things:

1. One of the improvements I proposed was formally adopted on Monday. Although it only is a motional improvement, it make me have a feeling of achievement.
2. After a month, I have got used to living here such as the spicy food, get up early and no matter where you are going, you have to take a taxi etc. Although I still can't accept the spicy food here.
3. After changing the other group of operators, I found there is a station will occurs the idle and I thought if we could add the buffer, this problem will be solve. In fact, this is a good idea and will be executed.

Three most difficult things:

1. In the factory, if we could reduce one or more operator and maintain the same productivity, that will be a wonderful thing. Therefore, I decided to reduce one operator by combining two stations. But in fact this is so difficult to me.
2. The working time of station is very important before improvement. The working time will change despite the same operator especially when you met the different group of operators. The working time of station is have to re-measure.
3. I found that my report is in trouble. I have no good idea to expression my content to make other people could easily understand my thoughts.

Three things to do next week:

1. Trying to make the event that two stations are combined come true. This is my own goal.
2. I need to brainstorm a good idea that could easily make other people understand my mean.
3. Keep absorbing new knowledge that I don't know.

The three most satisfying things:

1. This week, we went to workshop with the Japanese adviser. He shared his experience to us and made me understand more knowledge about 5S, TPS (Toyota Production System).
2. By instruction of the Japanese instruction, I got another way to observation the production line. Because of the new way, the point I will pay attention is getting more and more.
3. The third improvement method I proposed was be executed. It is an easy idea, add the buffer, it could decrease the idle time and make the production line get more smooth.

Three most difficult things:

1. Because the increase of new operations, the production line become more and more new operations are training. It affects me to measure the working time because the new operation will be allocated the work with the old operation.
2. Because of the supplier problem, lead to my production line, D3 line, stop producing. It also make me can't observe the production line and can't statistic the data of daily production.
3. If you want to execute this improvement, you need to consider any aspect which is effected by this improvement. That is why the improvement is not an easy way and this is also I need to consider it.

Three things to do next week:

1. Trying to observe the other production line and try to look for the place can improvement.
2. Keep looking for the place can improve at the last two weeks and it will make me more and more understand the IE.
3. Keep acquiring knowledge that I can absorb to expand my vision.

The three most satisfying things:

1. Finally, I finished my file of final presentation in the effort of every week. When I read my PPT, I will feel very glad. Because it is the first time I finish presentation by myself.
2. Experienced a two-month internship, I thought I really learning a lot of things like as the working way and how to get along with the Chinese people. It makes me understand their culture and the trend of factory in China.
3. I am honored to be able to participate in the LITEON internship. Because of this chance, I experienced a lot of different languages although I can't understand their mean.

Three most difficult things:

1. I need to prepare PowerPoint with two different versions for Qingxi and Neihu. It always make me confused that what I need to say because the different versions have different expression.
2. There is a very regrettable thing. That is I still can't completely execute my improvement although I thought it is very persuasive.
3. For the final report in G-Pro, I need to practice lots of times and make my oral expression better and better.

Three things to do next week:

1. I need to do my best to prepare my presentation and make my expression more fluent.
2. I need to prepare to pack luggage and I concern that my luggage has not enough capacity.
3. Cherish the rest of time and make a perfect ending at G-Pro. Let us have a good memory in here.