

Unmanned Aerial System (UAS) Project Implementation For Tenaga Nasional Berhad

ICT Division, Tenaga Nasional Berhad (TNB)

Presentation Contents



No.	Title
1.	Project Implementation
2.	Costs
3.	Comparison

UAS Project Implementation



Problem Statements

1. Difficulty to do remote monitoring and tower inspection due to remote location and limited road access
2. Time Consuming task
 - Manual inspection works
 - Manual reports generation
3. Ineffective results from manual service engagement for tower inspection
 - Unsatisfactory result due to the poor quality of images produced (vibration, zoom-in images due to distance)



UAS Project Implementation

4. The project has been implemented for a few area.
 - [Video](#) - Video capture with analytical to identify problematic rentice.

UAS Project Implementation

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 - [Video](#) – Video capture with analytical to identify problematic tower.

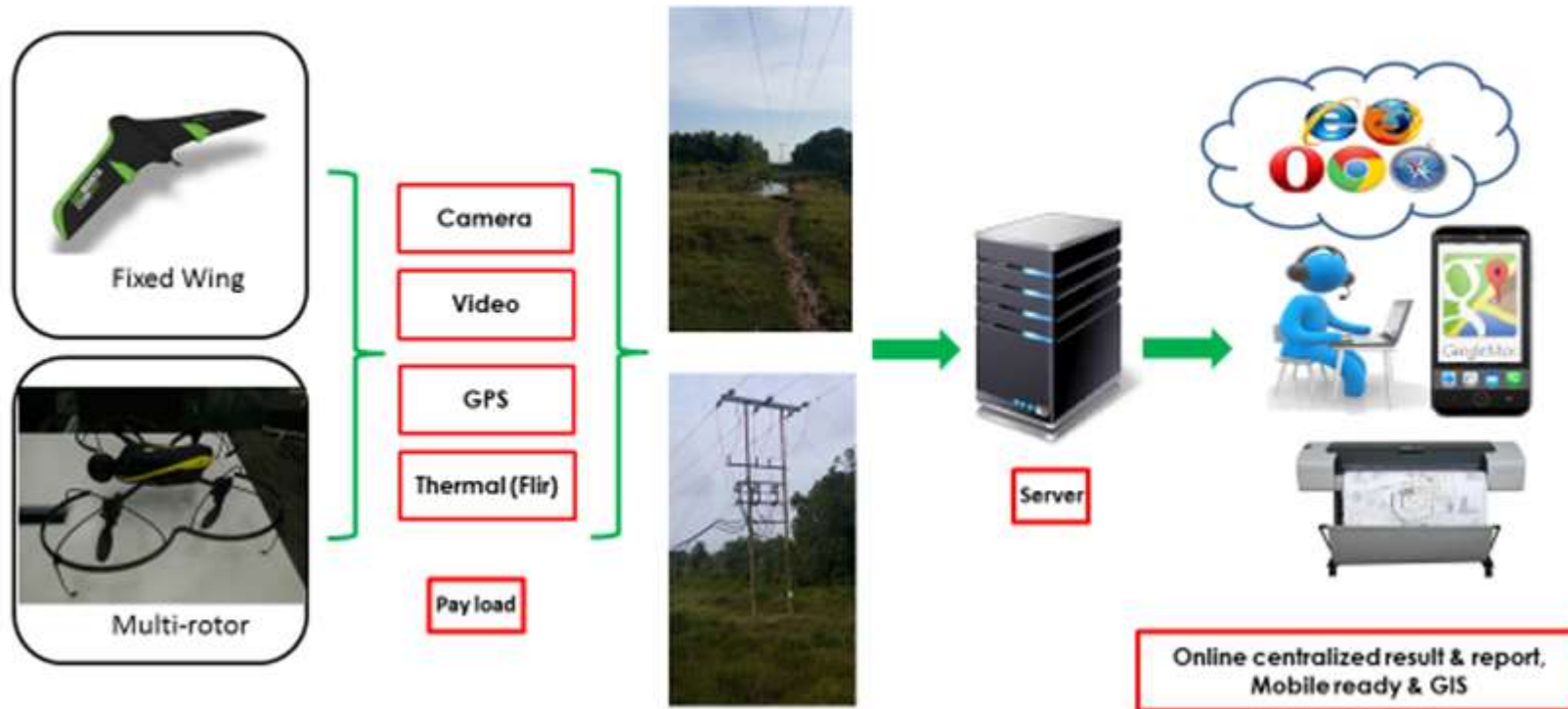
UAS Project Implementation

5. Solutions features:-

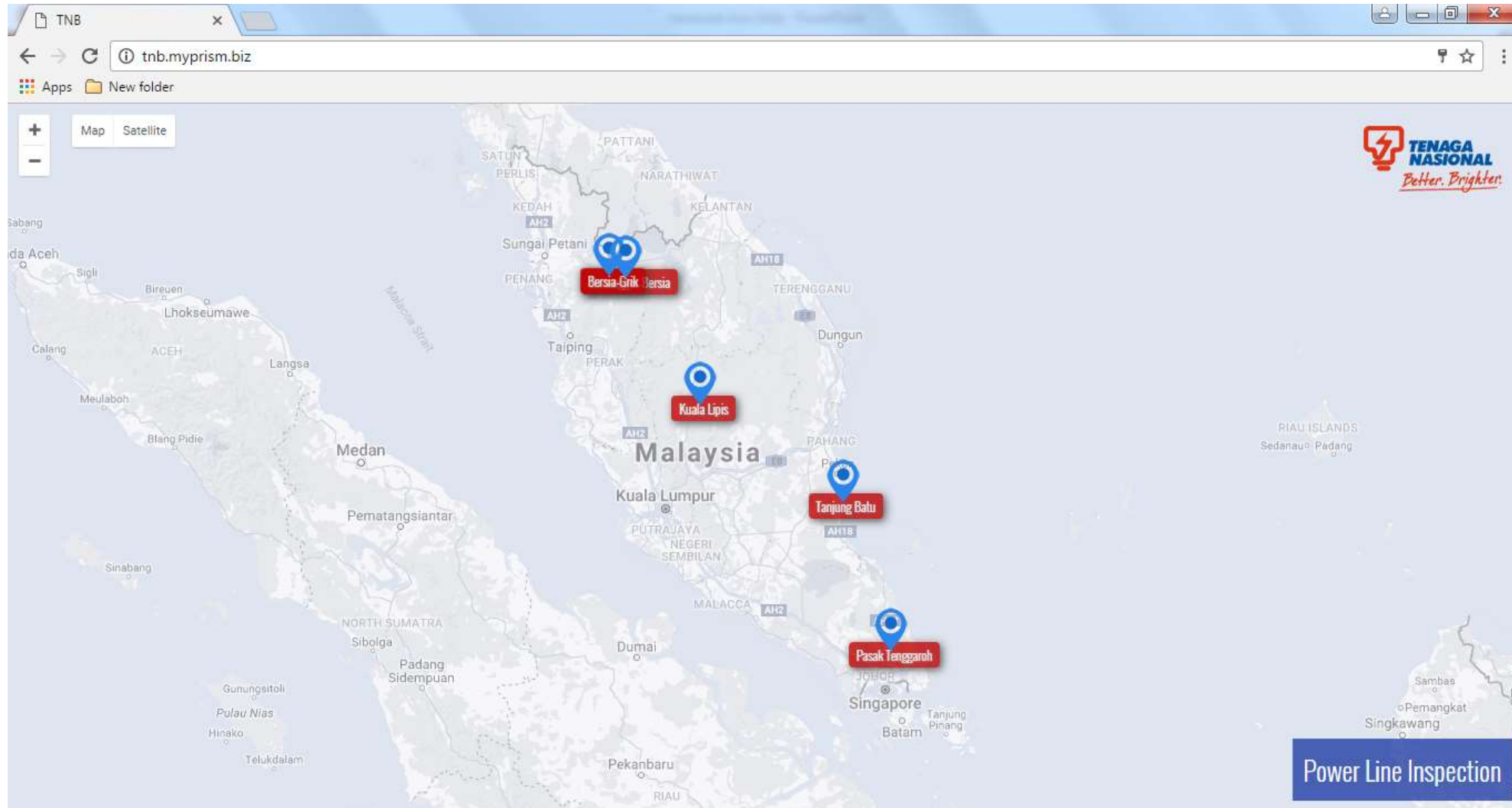
- Fully web & mobile ready
- Overlaying with Google Map
- Downloadable pdf report
- Downloadable video
- Interactive Web Report
- Thermal image by using FLIR camera

UAS Application

UAS Architecture



UAS Application



UAS Application



The screenshot shows a web browser window with the URL `tnb.myprism.biz/tanjung-batu/`. The page has a dark blue navigation bar with links for "Home", "Summary", "Rentice Tower Inspection", and "Inspection Map". The current page is titled "Executive Summary" and includes a "Download PDF Report" button. The main content is a 3D map of a power line span between "PMU TANJUNG BATU" and "PPU ROMPIN". The map is overlaid with colored circles representing tower inspection results: red for "Immediate Rectification Work", yellow for "Rectification Work Necessary", and blue for "No Issues". A legend in the bottom right of the map area defines these categories. Below the map, the "Objective" and "Scope" sections are visible.

Executive Summary

[Download PDF Report](#)

PMU TANJUNG BATU

PPU ROMPIN

- Immediate Rectification Work
- Rectification Work Necessary
- No Issues

Objective

The total tower for this span is 417 towers. This area is near to shore and some of the tower build in the swamp. All of the towers are vulnerable to strong weather, humidity and unstable land formation. Thus, visual inspection are crucial for this location.

Scope

1. RGB Visual Inspection
2. Thermal Inspection
3. Tower Rentice

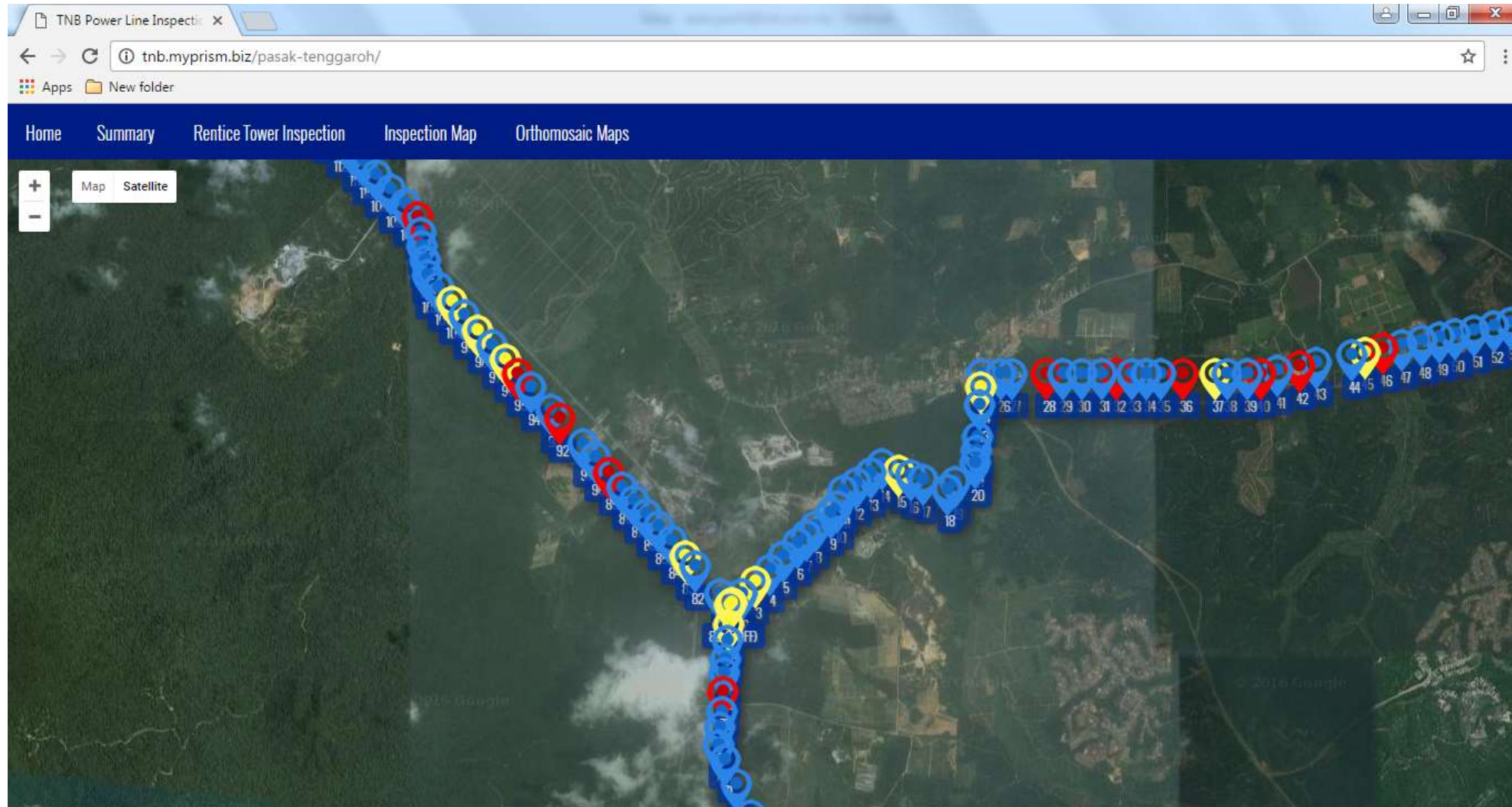
UAS Application



The screenshot displays a web browser window with the following elements:

- Browser Tab:** TNB Power Line Inspecti...
- Address Bar:** tnb.myprism.biz/kuala-lipis/
- Navigation:** Home, Summary, Inspection Highlight, Fixed Wing Inspection, Tower Visual Inspection, Thermal Map, Orthomosaic Map.
- Location:** Kuala Lipis
- Main Content:** An aerial view of a power line tower. The left side of the image is color-coded in red, indicating a specific data layer. A black box with white text displays the coordinates: "coordinate 101.976 N 4.2454 E".
- UI Elements:** A small "TENAGA NASIONAL" logo is in the top right of the video area. A video control bar is at the bottom right, and a text overlay "20160405 | KUALA LIPIS | PAHANG" is at the bottom left.

UAS Application

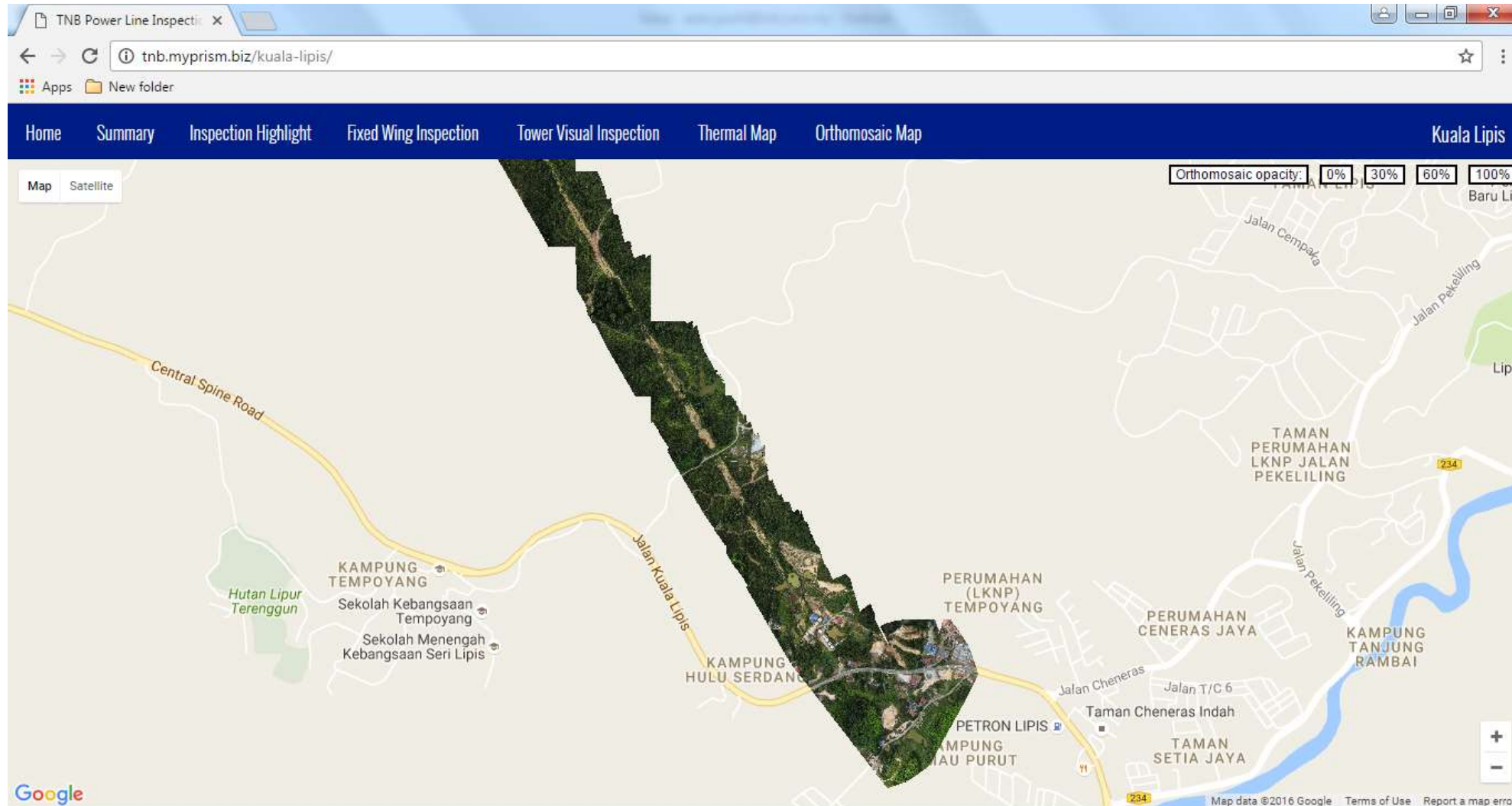


UAS Application



A screenshot of a web browser displaying a power line inspection application. The browser's address bar shows the URL "tnb.myprism.biz/pasak-tenggaroh/". The application's navigation menu includes "Home", "Summary", "Rentice Tower Inspection", "Inspection Map", and "Orthomosaic Maps". The main interface shows a satellite map with several blue location pins numbered 111 through 115. A pop-up window titled "Pole 92" is centered on the map, showing a grid of six images: three aerial photographs of a power tower from different angles and a thermal image of the tower. The thermal image shows a color scale from blue to yellow, with yellow indicating higher temperatures. Below the images, the text "Issue: Highly damaged wooden arms." is displayed. The coordinates "1.84648544, 103.94882706" are shown in the top right corner of the pop-up window. The browser's taskbar at the bottom shows the application icon and the number "94".

UAS Application



UAS Costs Impact

	Existing	UAS
Cost	RM170/tower	RM140/tower
Delivery (ex 1500 towers)	3 month	1.5 month
Total Cost (ex 1500 towers)	RM255,000.00	RM210,000.00
Total Productivity Savings (time)	N/A	1.5 Months ~ 6 weeks X 5 days X 8 hours X 5 pax = 1,200 Hours
Report Retrieval	60 secs	5 secs

UAS Matrix Comparison

	Existing	Proposed
Method	Walk	UAV & Operator
Reporting	Files submission (CD & USB Thumbdrive)	Online thru web browser
GIS Integration	N/A	GIS Application Development
Centralized Depository	N/A	Hosting Services & Web based
Video Quality	Normal HD Video	Analytic HD Video
Report Availability	Office PC	Anywhere & Anytime
Report Accessibility	Office PC	Any device

THANK YOU