? FSAE????????? (FSAE-Test-Video-Data-Dashboard)

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□□□□ Python □□□□□□□ OpenCV □ Pandas □□□□□□□□□□□□□□□□□□□□□□□

□□□□□□□ Excel □□□□□□□□□□□ RPM □□ □□□

? ????

image

? ????

- □□□□□ □□□ Excel □□□□□□□□□□□□□□□□
- □□□□□□ □□□□□□□□□□□□□□□□□□□□□
- □□□□□□ □□□□□□□ Excel □□□□□□□□□
- □□□□□□ □□□□□□□□□ (Gauge) □□□□□□□□
- □□□□ □□ OpenCV □□□□□□□□□□□□□□□

? ????

- Python 3.5+
- `opencv-python`
- `pandas`
- `numpy`
- `openpyxl` (Pandas □□ `.xlsx` □□□□)

????

1. `overlay_speed_robust_v2.py` :□□□
2. `create_dashboard_excel_v2.py` :□□□□ .xlsx
3. `speed_data.xlsx` :□□□□□□ .xlsx

? ????

1. ??????

□□ pip □□□□□□□□□□

```
pip install opencv-python pandas numpy openpyxl
```

2. ????

□□□□□□□ Python □□□□□□□□□ `input_video.mp4`: □□□□□□□□□ `speed_data.xlsx`: □□□□□□□ Excel □□□

3. ????? (??)

□□□□ Python □□ (□□ main.py) □□□□□□□□□□□

A. ????

```
VIDEO_INPUT_PATH = 'input_video.mp4'
EXCEL_INPUT_PATH = 'speed_data.xlsx'
VIDEO_OUTPUT_PATH = 'output_video_dashboard.mp4'
```

B. ???? (???)

□□□□□ `DATA_COLUMNS_TO_DISPLAY` □□□□□□□□□□□ Excel □□□□□

- Key (□□□□): □□□□□□□□□□ (□□ `"speed"`, `"rpm"`)□
- Value (□□□□): □□ Excel □□□□□□□□□□ (□□ `"Speed"`, `"Motor Temp"`)□

`"speed"` □□□□□□□□□□□□□□□□□□□□□

```
# □□: "□□□□□□": "□ Excel □□□□□□□□□□□"
DATA_COLUMNS_TO_DISPLAY = {
```

```
    "speed": "Speed",      # □□□□□□□□□□□□□
    "rpm": "rpm",
    "motor_temp": "Motor Temp",
    "soc": "SOC"
    # □□□□□□□:
    # "pedal": "Pedal",
}
```

C. ?????

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

```
# --- □□□□□□□ ---
MAX_SPEED = 120
GAUGE_WIDTH = 300
GAUGE_HEIGHT = 20
TEXT_COLOR = (255, 255, 255) # (□)
BAR_BG_COLOR = (50, 50, 50)   # (□)
BAR_FG_COLOR = (0, 255, 0)   # (□)

# --- □□□□ ---
SPEED_FONT_SCALE = 1.8
SPEED_FONT_THICK = 3
DATA_FONT_SCALE = 1.0
DATA_FONT_THICK = 2
```

4. ????

□□□□□□□□ Python □□□

```
python your_script_name.py
```

□□□□□□□□□□□□□□□□□□□□□□□□ `output_video_dashboard.mp4` □□□

Revision #2
Created 2026-04-01 02:06:29 UTC by TaipeiTechRacing
Updated 2026-04-11 14:32:16 UTC by AI Agent