LIDIKZI 2 REPORT

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4. Jaringan Kontrol dan Video (RF)
5. Aplikasi Box Controller
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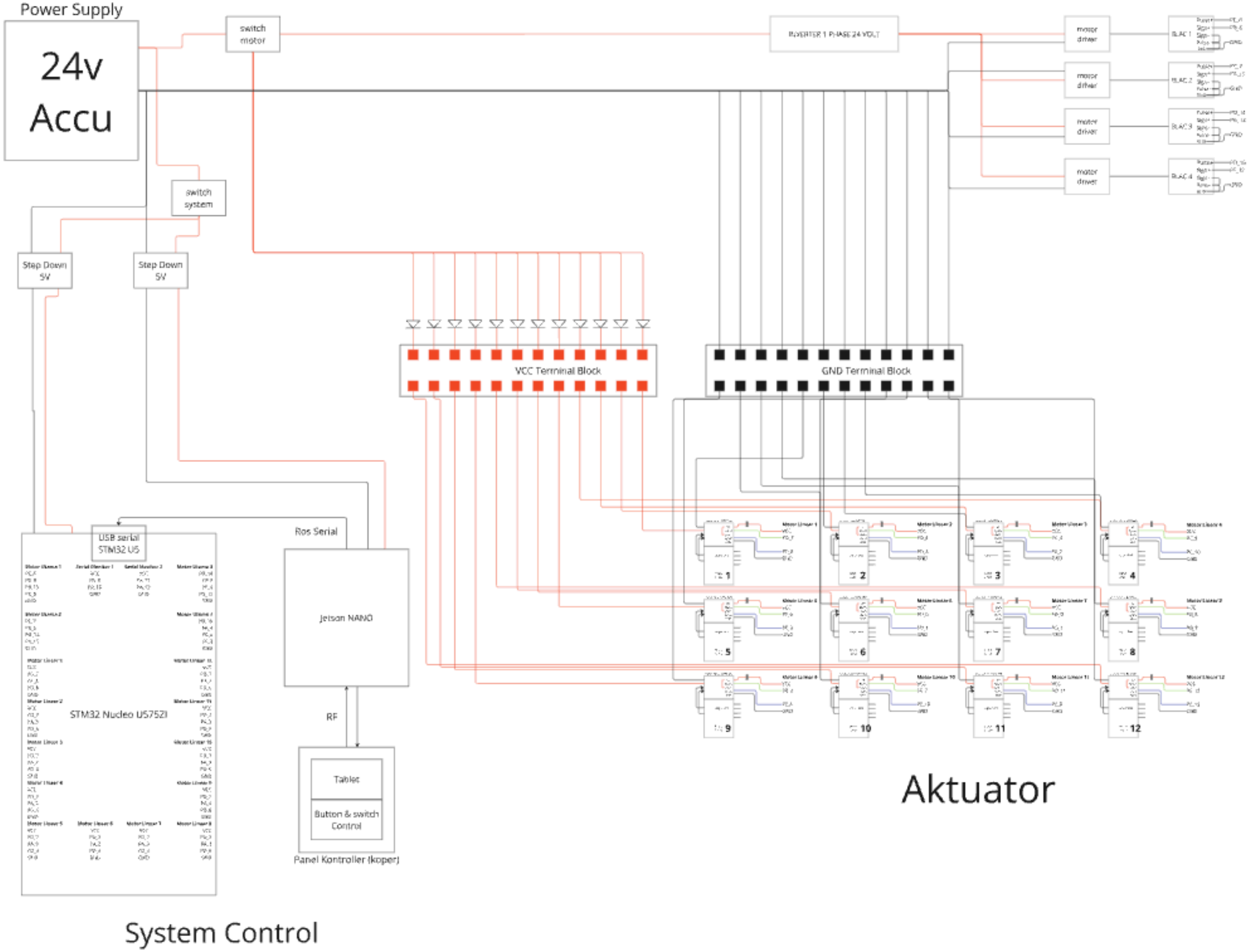
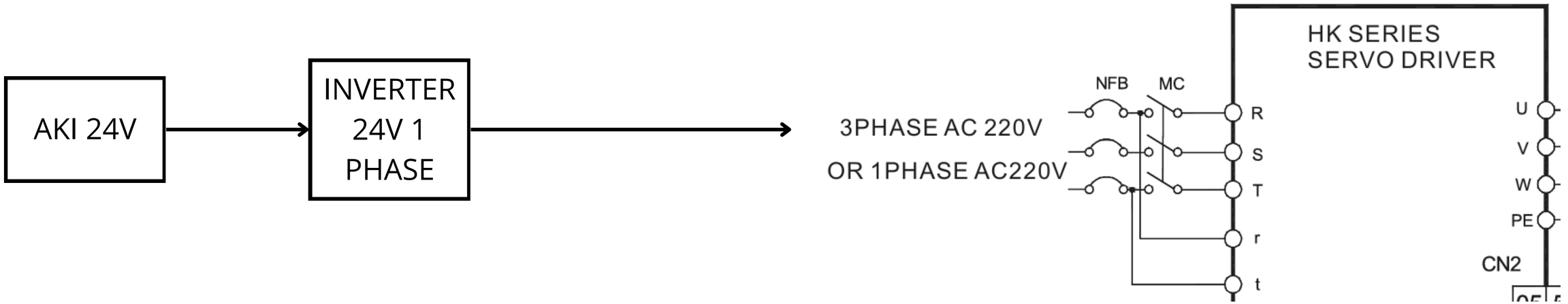


skematik dasar secara keseluruhan

PSU wiring


AKI 24V
INVERTER
24V 1
PHASE
3PHASE AC 220V
OR 1PHASE AC220V
NFB
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SERVO DRIVER
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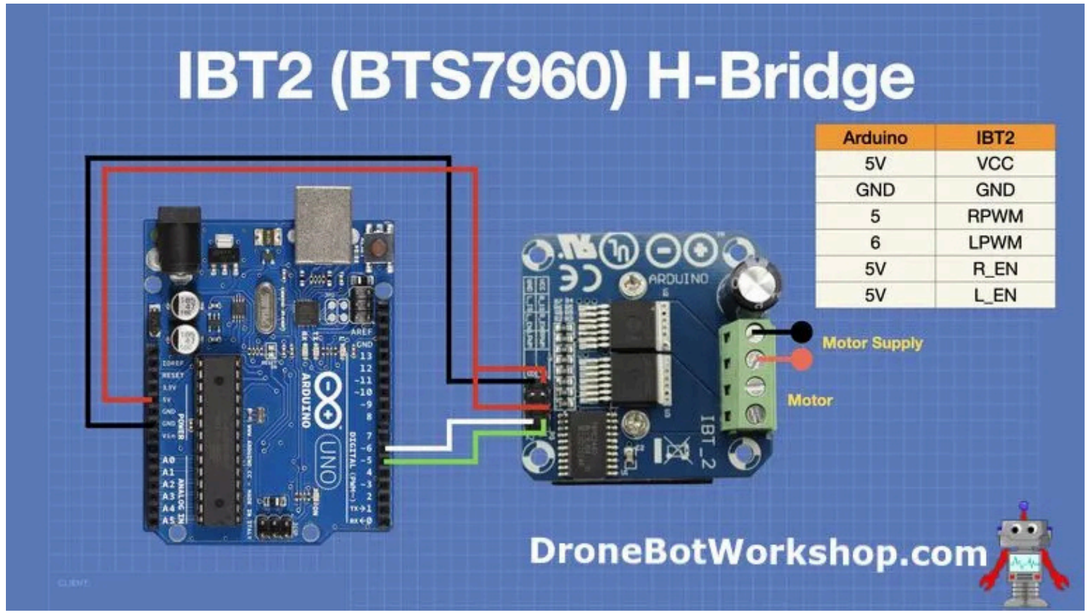
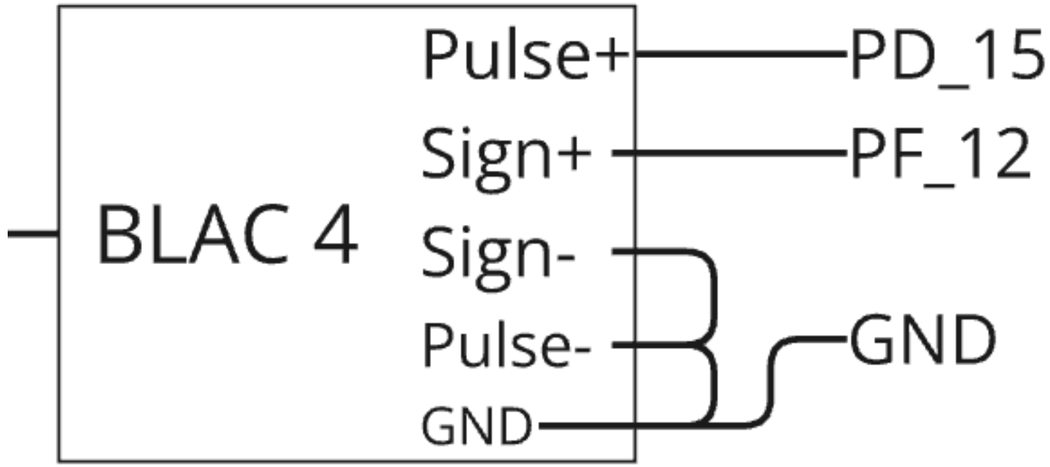
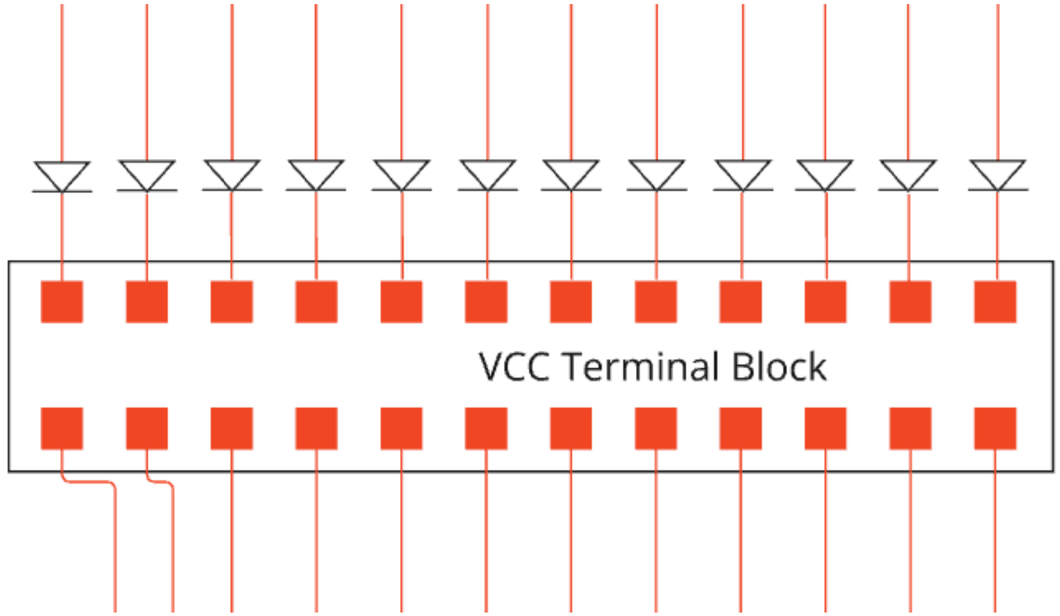
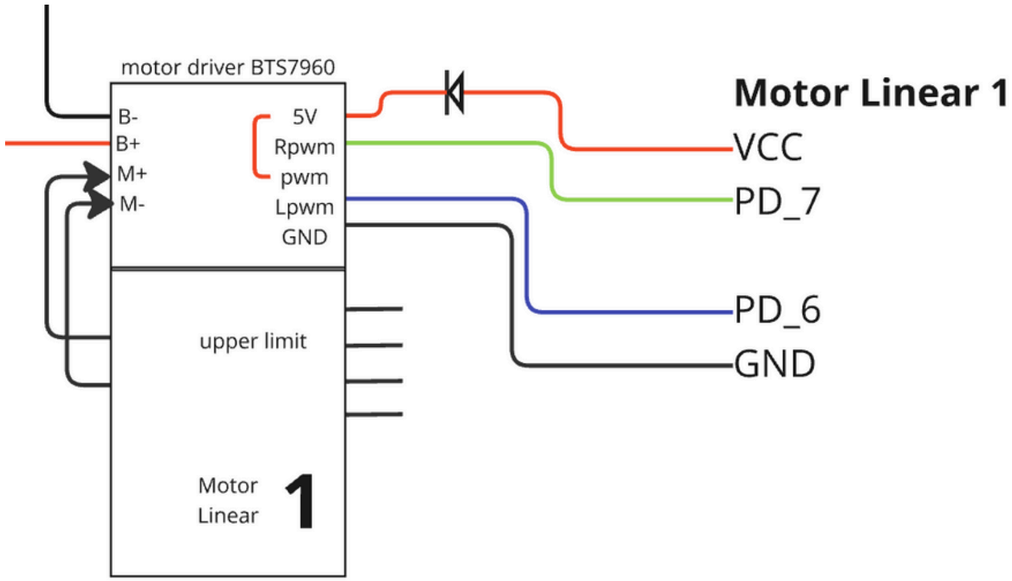
BTS & AC motor driver configuration





Protection wiring (DIODE protection)





Motor AC Calibration

jog operation digunakan untuk melakukan kalibrasi pada motor AC untuk melihat kondisi pergerakan motor ac dan menggerakannya secara perlahan melalui motor driver , disini SON diaktifkan melalui setting parameter PA-53 dengan nilai 0001

3. JOG Operation

- Switch on the power supply of the control circuit (the power supply of the main circuit is not connected. for the time being) , and the display of the driver is lit ,If there is an alarm,please check connection.

- Switch on the main circuit according to the following table

Parameter No .	Meaning	Parameter values	Factory default value
PA4	control mode selection	3	0
PA20	driver disable input is invalid	1	0

- After confirming that there is no alarm or any abnormal situation, make the servo enable（SON）ON, and the RUN indicator light will be lit .At this time , the motor will be excited and in the state of zero speed
- The speed trial operation prompt is "J 0" ,and the value unit is r/min.The system is in the speed control mode,and speed control mode and the speed command is provided by the key.Press the key ▲ and hold the motor will run at JOG speed , release the key, the motor will stop and keep zero speed, press the key ▼ and hold, the motor will run in the opposite direction of JOG speed , release the key , the motor will stop and keep zero speed.JOG speed is set by parameter PA 21,and 120r/min is missing

- If its inconevenient to enable the external control (SON) , you can set the parameter PA 53 to 0001,and the Q forced servo enable(SON) ON is effective.External cables are not required to control the SON.

4.Manual speed control operation

- Switch on the power supply of the control circuit (the power supply of the main circuit is not connected for the time being), and light the monitor regularly .If there is an alarm , please check the connection.

Set the parameter values according to the following table

Parameter No	Meaning	Parameter values	Factory default value
PA4	control mode selection	2	0
PA20	driver disable input is invalid	1	0

- After confirming that there is no alarm or any abnormal situation make the servo enable (SON)ON, and the RUN indicator light will be lit.At this time , the motor will be excited and in the state of zero speed.
- Enter the speed trial operation state by pressing the key.The prompt for speed trial operation is "S 0", and the value unit is r/min.The system is in the speed control mode, and the speed command is provided by pressing the key.Press the keys ▲ ▼ to change the speed instruction, and the motor should run at the given speed .
- If its inconvenient to enable to external control servo (SON), you can set PA 53 to 0001 to enable the forced servo (SON)ON and dont need external cable control.

Motor AC Parameter setting & usage

untuk menjalankan motor AC diperlukan setting terhadap PA20 ke 1 suapaya dapat menginputkan perintah ke motor driver lalu ssetting di PA12 dan PA13 terdapat beberapa pilihan tergantung freq yang diinput dan torque yang diinginkan, disini saya menggunakan confg PA12 = 10 PA13 = 3, disini SON diaktifkan melalui setting parameter PA-53 dengan nilai 0001

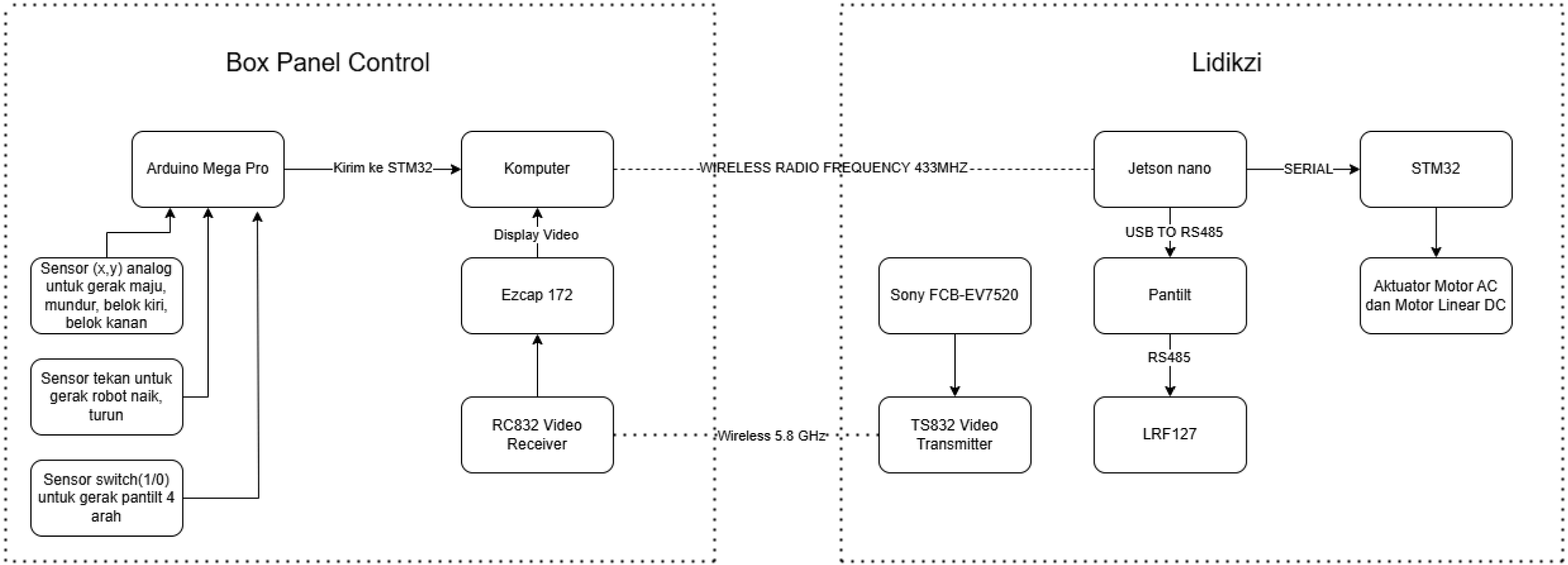
Parameter No.	Meaning	Parameter values	Factory default value
PA4	Control mode selection	0	0
PA12	Electronic gear molecule	User settings	1
PA13	Electronic gear denominator	User settings	1
PA19	Position command smoothing filter	0	0
PA20	Driver disable input is invalid	1	0

- If there is no alarm or any abnormal situation , make the servo enable (SON) and RUN indicator light on ;Send low frequency pulse signal from the controller to the driver to make motor run at low speed

Table 7-2 Relationship between input pulse frequency and rotation speed

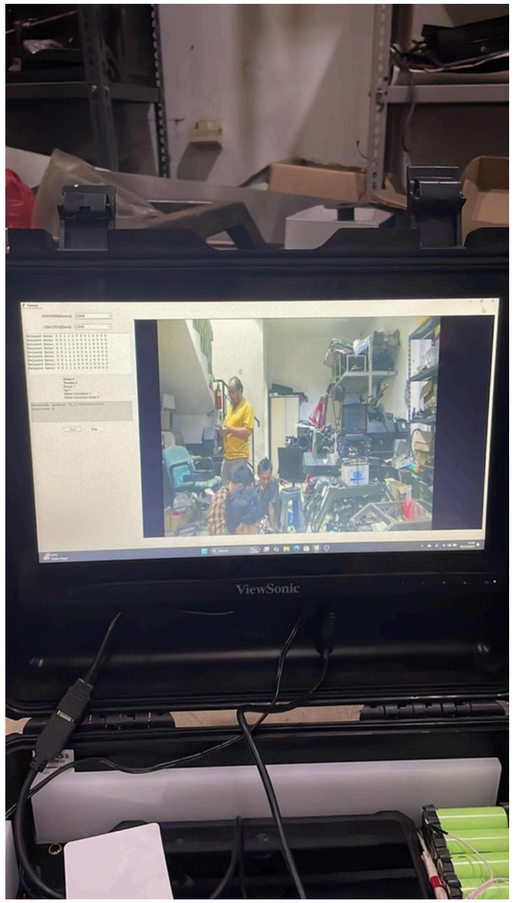
Input pulse frequency (Hz)	Motor speed (r/min)	Electronic gear molecule PA12	Electronic gear denominator PA13
Frequency	$\frac{\text{Frequency} \times 60 \times \text{PA12}}{10000 \times \text{PA13}}$	PA12	PA13
300k	1800	1	1
500k	3000	1	1
100k	1200	2	1
100k	1800	3	1
50k	1000	10	3
200k	800	2	3
100k	300	1	2

Jaringan Kontrol dan Video(RF)



Aplikasi Box Controller

https://github.com/kikifachrizi/Lidikzi-robot



Catatan Pemakaian mode RF (Serial) melalui Serial Control App

1. Aplikasi Untuk mengakses aplikasi untuk mengontrol menggunakan source code python. (python3 ./serialControlApp/FINALFIXAPP.py).
2. Executable Untuk platform windows hanya perlu mengklik dua kali ./serialControlApp/dist/finalcoba.exe
3. Video untuk video diperlukan ezcap dengan driver ezcap172 (tersedia untuk windows, Ubuntu belum berhasil). Pastikan setiap kali aplikasi dijalankan OBS hidup/berjalan pada perangkat.
4. Running setelah aplikasi dijalankan, perlu mengecek serial com port yang sesuai berdasarkan perangkat yang terhubung, lalu tekan tombol start.
5. Sending data jika data berhasil di-relay-kan, data akan dikirim setiap 250ms. Pastikan data terus dikirim yang dapat dilihat pada terminal.
6. Control Berdasarkan panel box control, terhadap fungsionalitas untuk Maju, Mundur, Belok Kanan, Belok Kiri, Up (mengangkat), Down (menurun). Kamera pantilt dapat dijalankan ke atas, kanan, kiri, bawah, menggunakan switch berwarna merah. Selain itu ada juga keypad nomor 1 (mengotrol motor linear kanan depan) dan 2(motor linear kiri depan) untuk mengatur belok dari masing-masing ban, memungkinkan kontrol independen pada setiap ban yang akan belok. Jika ingin mengembalikan kontrol tekan (0) pada keypad untuk menggerakan kedua ban.
7. Troubleshooting Secara default, skrip di robot akan selalu dijalankan/diulang meskipun koneksi terputus. Jadi penting untuk terus mengirim data secara terus menerus. Jika robot tidak merespon perlu dilakukan restart robot/mencabut-pasang telemetry RF pada robot.
8. Pengujian Robot pernah dites dengan jangkauan 160m (Tidak Line of Sight). Untuk Video sedikit samar-samar. Namun sistem kontrol secara teori dapat dikontrol lebih jauh jika dibandingkan dengan video transceiver.
9. Putus Koneksi Sistem Failsafe dapat terjadi jika robot tidak terkoneksi dengan aplikasi GCS. Dapat diihat dnegan lampu berkedip pada robot.

video pengujian

Terima Kasih🙏🙏🙏