

Detection System Air Filters In Air Conditioning Algorithms

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PRELIMINARY

One of the things that can affect the quality of work of air conditioning is the air filter that has been soiled, where air is sucked through the air filter has been hampered by a buildup of dust, so that the air circulation becomes impaired. This can increase the electrical energy consumption of air conditioning equipment for the compressor will work continuously for air conditioning is still functioning.

For testing algorithm [3] detection system of air conditioning air filters, it takes the form of a software simulation program Proteus [4], where coding programs created using the software CodeVisionAVR [1][2].

Flow Chart Sistem

Flow charts detection system air filters of air conditioning is shown in Figure 1.

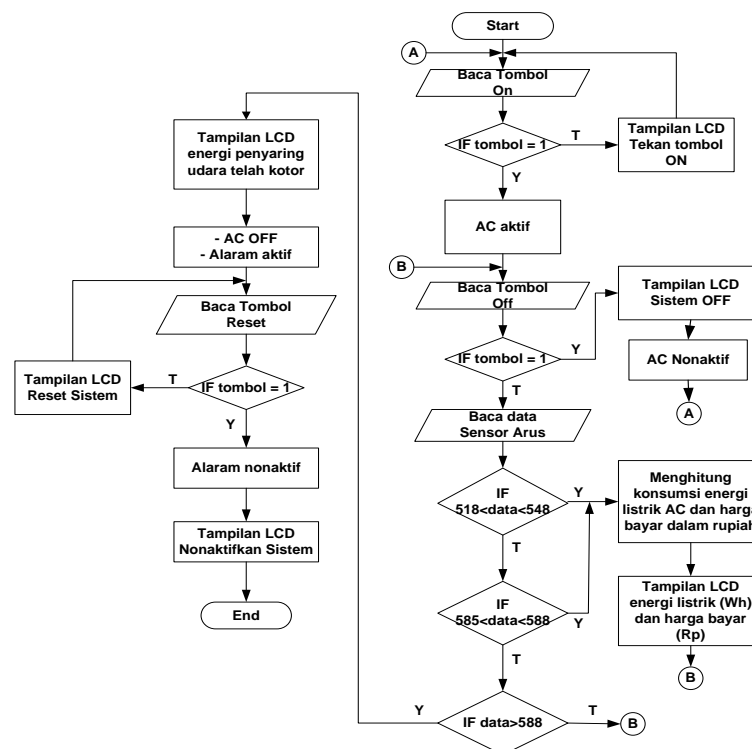


Figure 1: Flowchart system

Description algorithm of the system as follows:

- The initial stage of the system will read the state on the button to activate the whole system.
- Once the system is active, air conditioning equipment will be activated via a relay driver circuit.
- Then the system will meBaca state whether the off button is pressed or not, if pressed, the system will turn off the air conditioning working, then the system back to stage 1. If the off button is not

pressed, then the system leading to the next stage.

- The next stage, read current sensor data through the ADC then compare it to the setpoint value.
- If the current sensor data is in the range setpoint value when the compressor is in off state (only indoor work), then the system will calculate the consumption of electric energy (Wh) and the amount paid (IDR) and display via the LCD.
- If the current sensor data is in the range setpoint value when the compressor is currently turned on (out door and indoor work), then the system will calculate the consumption of electric energy (Wh) and the amount paid (IDR) and display via the LCD.
- If the current sensor data is greater than the setpoint value when the rising consumption of electric current for the compressor work long due to soiling the air filter of air conditioning, the system will turn off the air conditioning work and activate alarms and display information through the LCD that has a dirty air filter.
- Then the system will read the state of the reset button to deactivate the alarm and informed that the system must be turned off to do a cleaning of dirty air filter of air conditioning equipment.
- After the process of air conditioning maintenance carried out, the operation of the system back to the early stages of reading on the state of the button to activate the system.

SYSTEM PLANNING

The design of the system is done by combining system modules such as relay driver module, driver module current sensor, alarm driver modules, input modules such as buttons and an LCD display that serves as. The modules are integrated with a microcontroller ATmega 8535 that serves as the central control of the whole system work, based workflow that is drilled into the microcontroller program ATmega 8535. Figure 2 shows the design of the detection system air filter air conditioning.

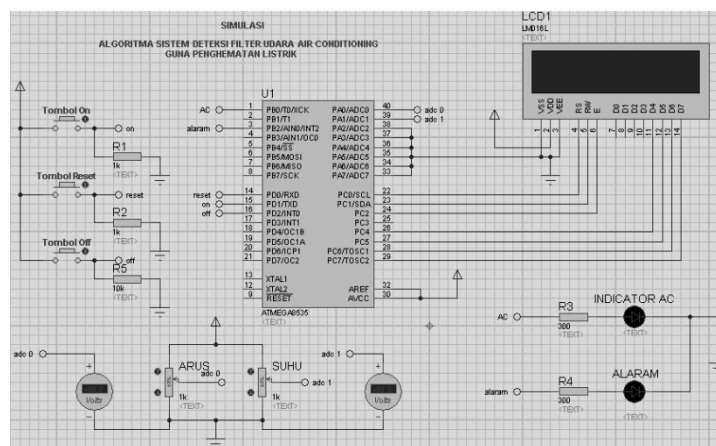


Figure 2: Design System

CONCLUSION

From the results of tests performed, the air filter algorithm detection system can turn off air conditioning working and inform the user through the alarm indicator and the LCD display that the Air Conditioning needs to do maintenance when the air filter is detected is dirty.

REFERENCES

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- [4] User Manual "Intelligent Schematic Input System" Labcenter Electronics, November 2002.