NAMA = WAHYU NOVIA SAPUTRO

NIM = 3.37.18.0.20

KELAS = IK-2C

1. Explain the interface and microprocessor systems and their implementation that you know! (Eg in the fields of health, agriculture, industry etc.)

* In the fields of agriculture

Electronic modules for storing drugs and reminder consumption of drugs based on Arduino. The container and drive sub modules consist of mechanical components and electrical control (microcontroller). This container is used to store drugs that will be consumed. The drive device is used to control and choose the drug to be consumed.

Implementation. There are three important parts, namely the power supply circuit for the system, the circuit of the microcontroller, and the circuit for the communication module used. The circuit above is a circuit designed for microcontrollers with Arduino nano modules and ESP8266 communication modules. There are six pins to connect with the actuator used and a buzzer as an indicator of the tool.

* In the fields of industry

Embedded microprocessor systems are nothing but computer chips that are integral part of lighting system, home appliances, industrial equipments, etc. Generally, microprocessors are used in signal processing, general computing and real-time computing data. As a signal processor, microprocessors’ uses in digital televisions include decoding of the digital and radio signals. In real-time systems, microprocessors are embedded in security devices like anti-lock breaking system

Implementation. In telephone industry, microprocessors are used in modems, telephone exchanges, digital telephone sets, and also in air reservation systems and railway reservation systems both at international and national levels. Mobile phones and televisions also use microprocessors.

* In the fields of health

One industry which can be expected to be among those which are greatly affected by microprocessor technology is the multifaceted "health care" industry. This industry is not limited simply to hospital services. It includes planning and delivery of all facets of health care including both large and small hospitals as well as clinic services, group medical practices, individual medical practices, and non-physician services such as rehabilitation or pharmacy. The industry also extends to equipment and devices owned and used by patients themselves and to the selection, monitoring and maintenance of such equipment. The recent offering of short courses on microprocessor design in medicine and biology as well as computer applications in genera1 are evidence of the continued growth in these areas. Increased use of computer systems in the health care delivery arena will require the employment of technologically trained people to purchase, use, and maintain microprocessor based equipment. Recent federal legislation concerning safety and efficacy of medical devices will of necessity include consideration of microprocessor components.

1. An interface system requires remote communication between two devices. In your opinion, what interface system is suitable to be applied in the system that is to be made?

The media must fulfill at least 3 criteria, namely guaranteed data accuracy, long-range coverage, and economical. One of the media that meets these criteria is amateur radio. In order to be used as a medium in remote monitoring systems, amateur radio requires a terminal interface called TNC (Terminal Node Controller). TNC functions to adjust the form of information sent to the media used, regulate communication between amateur radio, and ensure the reliability of data transmission.

1. The interface system will be used for communication of several different devices such as microcontroller Arduino, Computer and cellphones. In your opinion, what interface system is suitable for implementation?

Blynk application based automatic lights = To turn on the lights automatically by using the esp8266 wifi module on Arduino or using the Nodemcu esp8266

and the blynk application on a smartphone

1. How can sensors be used to read data and be converted into information for digital interfaces? Explain!

The sensor's output is connected to an Arduino analog input. The Arduino's analog-to-digital converter (ADC) then converts that value to a value between 0 and 1023. This value is then mapped to a value between 0 and 255, and that number is used to set the duty cycle of a pulse-width modulated output

1. Explain the design of the interface project you want to make in the mini project for Mid Semester!