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CSE360
ASSIGNMENT-1

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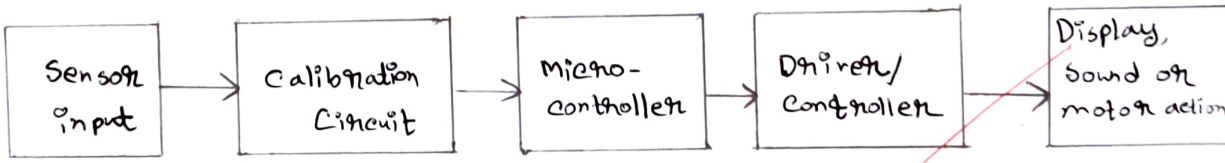
Sec : 02

Ans. to the ques. No: 1

In the given scenario, we are designing a coal mining system where we detect temperature and humidity of the coal mine with the help of sensors. After detecting the values, we display the values on the screen or monitor. The whole process will be done by hardware interfacing.

In the given scenario, we can see the interfacing of micro-controller took place as the Sensor is taking input from environment.

Micro-controller: Designed for doing specific tasks and has fixed program.



Here, input device is taking input through sensor input. Sensor input takes data from environment. In this case, the sensor input is taking temperature and humidity as input. This input goes through the calibration circuit to the micro-controller.

Usually sensor input takes resistance, inductance, ~~induction~~. etc. as input. Then it output gives output as voltage to calibration circuit.

Calibration circuit works as a interfacing unit. It takes voltage as it's input. As, micro-controller can not take voltage more than 5 volt, the input calibration un unit received has to be regulated. The work of regulation is done by calibration circuit. Calibration circuit takes the whole voltage as input and keep it in a range to pass into the micro-controller to process.

Aftter processing the data, the data goes through the driver/controller and then it goes to the output device. Micro-controller gives the necessary command to driver/controller. Driver/controller takes the command and generate necessary voltage/power and provide it tt to the output device. The datas we need to show on display will come from Micro-controller and the configuration of display device and necessary power supply comes from the driver/controller.

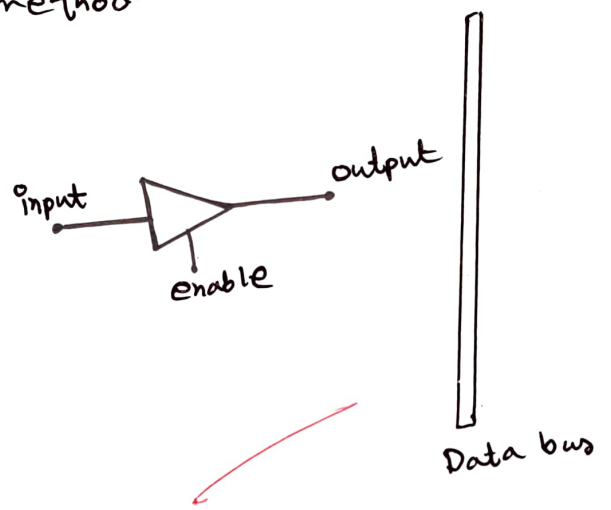
In our case, the sensor input takes input as it wants, pass it as voltage to calibration unit. Calibration unit regulates the voltage and keep it in a range so that micro-controller can process it. After processing the data, it gives commands to driver/controller and it provides data itself to display. But configuration of display and necessary power comes from driver/controller.

So, thus, the whole process of detecting the values and displaying it on screen/monitor is being done.

Ans. to the ques. No: 2

Bus conflict: When two or more input devices produce output or write to data bus, bus then bus conflict arises.

We can resolve the bus conflict by using the tri-state method.



enable	input	output
0	X	Z
1	0	0
1	1	1

In Tri-state, at a time only one device can access the data bus. When a input device is writing to the data bus, no other device can access the bus. This mechanism is maintained by the enable pin.

If enable pin is '1', then whatever we give input, it come as such output and writes into the data bus.

When, the enable pin is '0', no matter what the input is, it will not produce any output. This state is called high impedence state. In this state, output wire of input device receives high resistance which doesn't allow the device to write into the data bus.

In this manner, only one input device's ~~input pin~~ enable pin stays '1' and the rest of the device's (Input) enable pin stays '0'. Thus, bus conflict can be resolved.

Ans. to the ques. No: 3

Before the use of USB-C, August 2014, we had many variations of USB ports. We had; USB A, USB B, USB Micro A, USB Micro B, USB Mini A, USB mini B. These types had other variation features. For example: USB 1.0, USB 3.1, USB 4.0 etc.

USB ports had a remarkable journey, steady revolution over the years. Let us know some of the USB types:

USB type A: It is a mainly host connector for our computer. We still use these port to connect pen drive, mouse/keyboard. It has a connect orientation, in order to use the plugged the device we have to put the USB cable in a correct orientation.

USB type B: We still use these ports to connect printer or microphone. This port is slightly larger than USB type A.

USB type Mini B: Slightly smaller that USB type B, used in old smartphones and digital camera. Mainly it is used in smaller devices.

USB micro B: The width of this port is same as USB type mini B but the thikness is much less, which enables this port to connect with even smaller devices.

Then came USB typ-C. The ~~sp~~ advantages of USB type-C are:

① This connector is thin, previous USB-types were flat and required larger devices.
② slimmer than the pherious ones.
③ No orientation is requaired. We can plug it in the device in any orientation. It was not possible in previous USB types.
④ Both end can work as a host connect. Previously, USB type-A has to be the host connector in most of the cases but it's not the case in USB type C.
⑤ New USB 4.0 implementation on USB type-C made the USB faster than any other ~~usb~~ USB ~~ports~~ types.

For this reason USB type C is being used now a days rather than using old USB types.

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