CT

CSE-405

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CSE-17

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Ans. to the ques. no.-01

Capacitor bucket problem happens for the case of Dynamic RAM. The bucket problem is when the capacitor is used for storing and retreiving Data for a RAM. Dynamic RAM uses a Transistor and a capacitor to store and retreive data. ~~inside~~

∴ The problem is capacitor cannot store the charge forever. Capacitor has its leakage current. If we imagine capacitor as a bucket, then the leakage current can be imagined as a leakage in that bucket. And this is known as capacitor's bucket problem.

this problem can be solved using

a refresh circuit. After some time this circuit Refreshes the DRAM. It reads from the memory and write again in that memory. This needs to happen before the capacitor leak happens. And this is how the leakage of capacitor in DRAM is solves.

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Ans. to the ques. no.-02

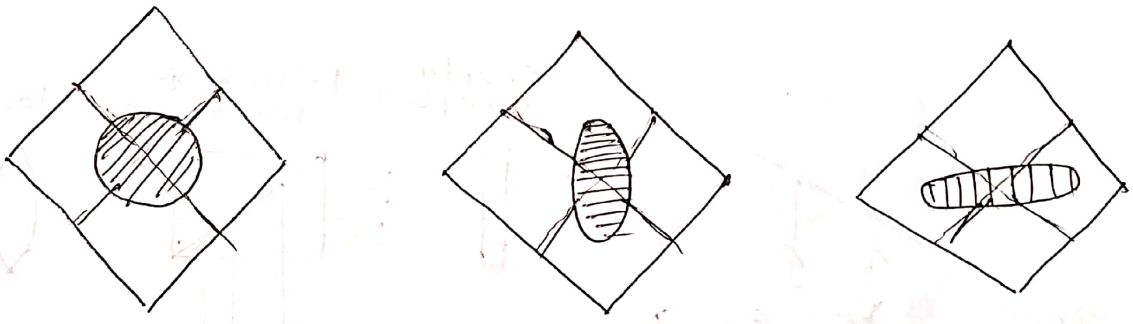
Two aspects of optical positioning are:

① Focus control

② Track following

① Focus Control:

Focusing of a laser beam on the surface depends on the distance between the surface and the objective lens. And in order to get the proper depth a diamond shape of 4 sensors system is employed to get the position. like below:



a) In focus b) Short c) Long

Fig: Focus controlling

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Focus control needs the objective lens and the surface distance calculation properly focus the pits and bumps. and the 4 sensors system we calculate the sum of top and bottom and then sum of the Right and left portions of the diamond.

② Track following:

A The need for always follow the Track is a must. The track following happens like the figure below:

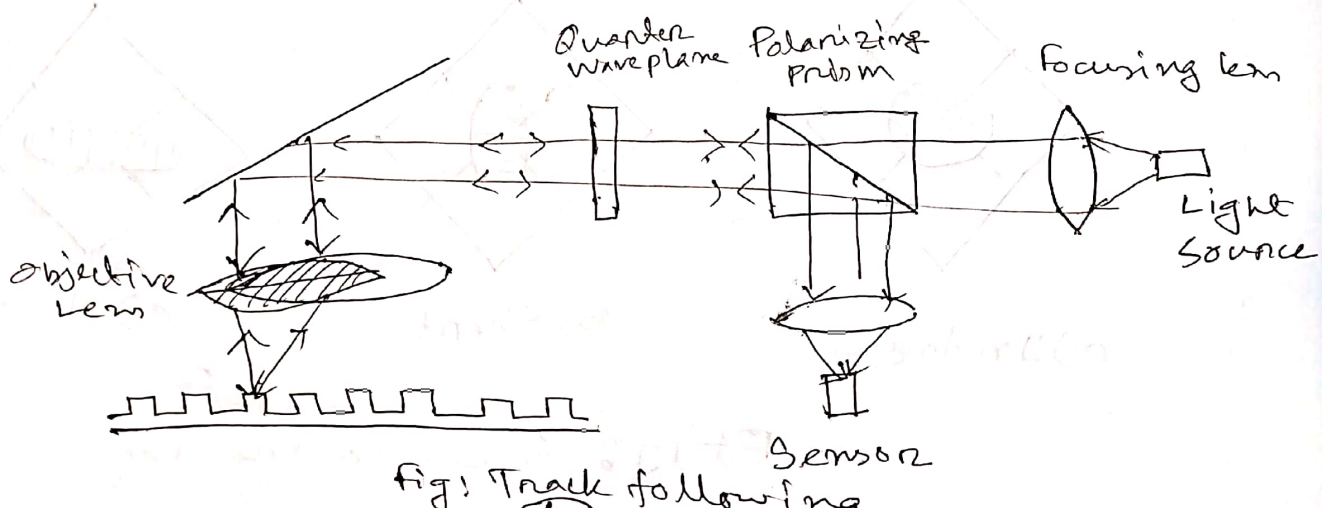

fig: Track following

And in this manner the Track following happens in the optical positioning.

Ans. to the ques. no. - 03

Problems of using Hamming code in perspective of optical recording are given below:

① Cannot Detect and Determine the errors at the same time.

② If duplicate code happens, cannot determine the real code and the duplicate code.

P.T.O.

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Ans. to the ques. no. - 65

The barcode is 477 840366 5929 → total 13 digits → therefore it is a EAN code.

The prefix is 4 so from Table-2:

A B A A B B .

The first 6 digits:

7	7	8	4	0	3
Left Hand A	Left Hand B	Left Hand A	Left hand A	Left Hand B	Left Hand B
0111011	0010001	0110111	0100011	0100111	0100001

The Last 6 digits:

6	6	5	9	2	9
Right Hand	Right Hand	Right Hand	Right Hand	Right Hand	Right Hand
1010000	1010000	1001110	1110100	1101100	1110100

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~~Check Digit~~: Check digit:

① sum of even position: 7 + 8 + 0 + 6 + 5 + 2 .
= 28

② Step① × 3 = 28 × 3 = 84

③ Sum of odd position: 4 + 7 + 4 + 3 + 6 + 9 + 9
= 42

④ Sum of step② and ③ are: 84 + 42
= 126

⑤ (126 % 10) = 6 so, 10 - 6 = 4

So the check digit = 4.

So the : 1011100 .

So the encoded Barcode:

0111011 0010001 0110111 0100011 0100011 0100001 1010000

1010000 1011100 1110100 1101100 ~~1110100~~ 1011100 .

P.T.O.

We can scan this Barcode using the below CCD scanner arrangement.

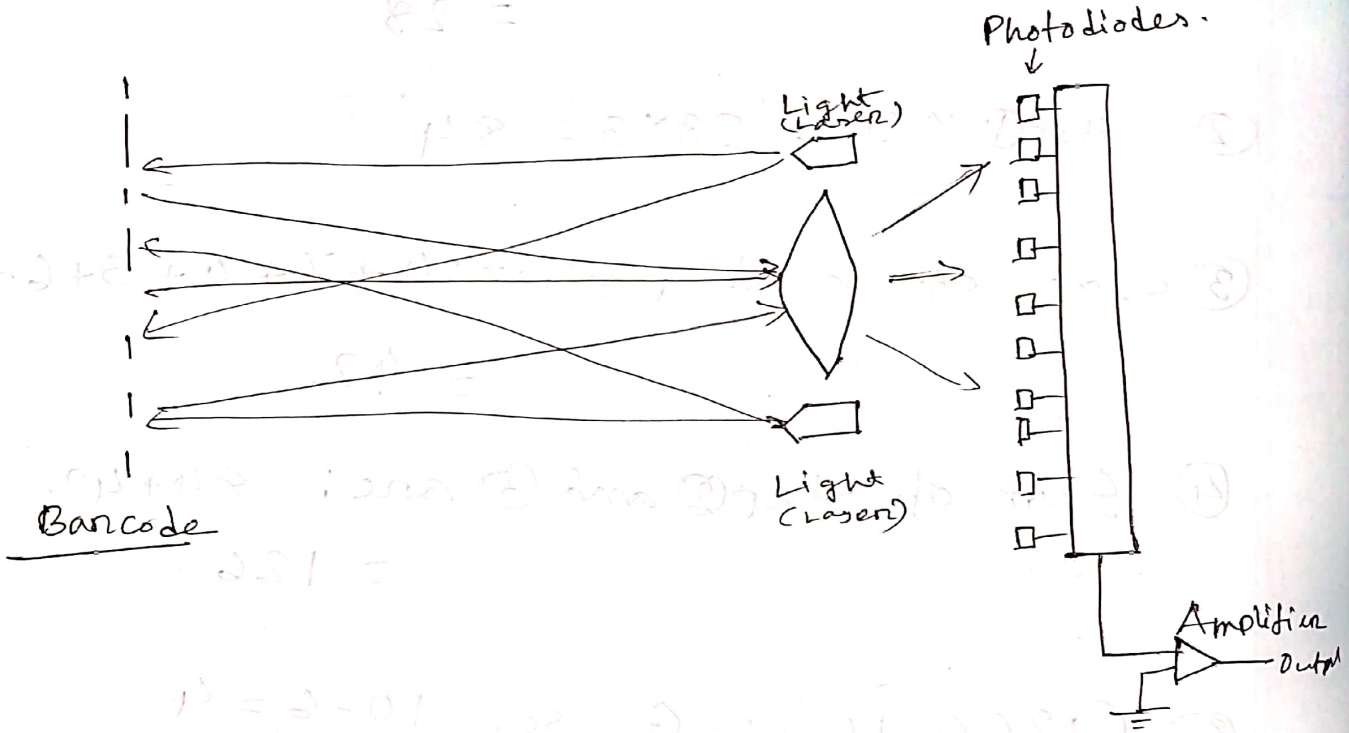

Fig: CCD Scanner Arrangement.

From the above arrangement when the light reflects from the Barcode the reflected light we can determine Black strips from White. as The intensity of the Black stripe Reflected light will be less then white stripe Reflected light. That is how we can scan the intensity and convert this as Binary info to read Barcode

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Ans. to the ques. no. 04

The paper is first charged drum scanned and the colon is then put in the drum. Then the drum is dis charged. In this way the charged and discharging the surface of photosensitive drum happens for transferring the image onto the paper.