

Figures du chapitre 1 : rappels de terminale STI et présentation du programme de physique appliquée en BTS systèmes électroniques.

1) Rappels du thème 2009 de STI électronique : robot aspirateur ROOMBA.

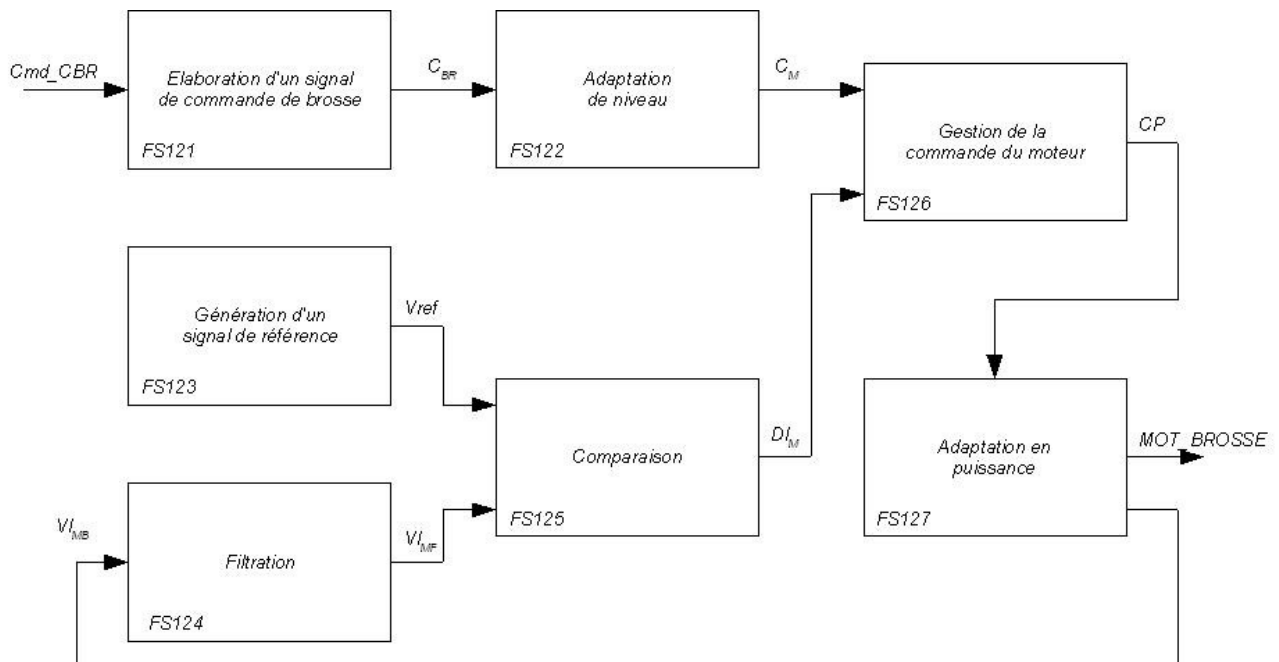


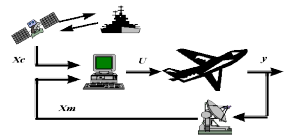
Fonction FP12 : Interface de la brosse :

Le robot est muni d'une brosse centrale qui tourne dans le sens horaire et qui propulse la poussière dans le compartiment ramasse poussière. La brosse est actionnée par un moteur à courant continu protégé contre les éventuelles surcharges.

- Entrée : variable logiciel représentative de la mise en fonctionnement du moteur balai.
- Sortie : Alimentation en énergie du moteur brosse.

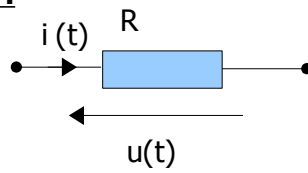
Note : Le moteur consomme 60mA à vide et 80mA en charge, la résistance du moteur $R_M = 12.5\Omega$.



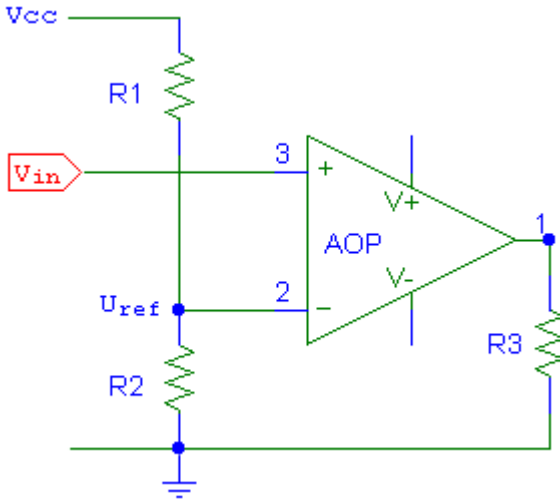


2) **Composants utilisés :**

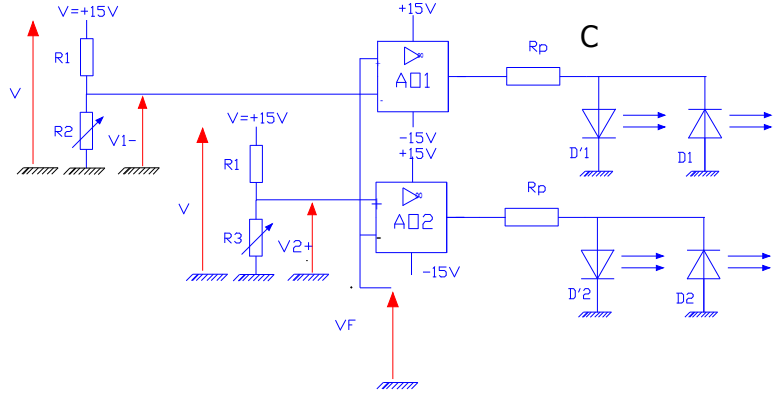
● Résistance :



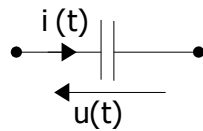
Utilisations :
diviseur de tension :



limitation du courant dans une LED :

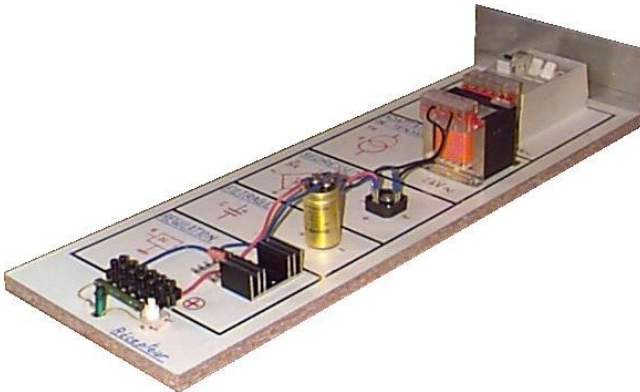


● condensateur :

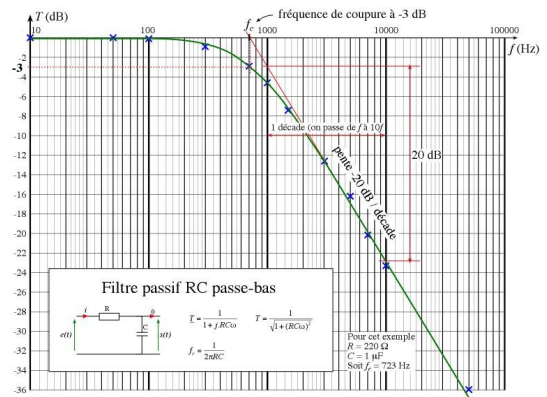


Utilisations :

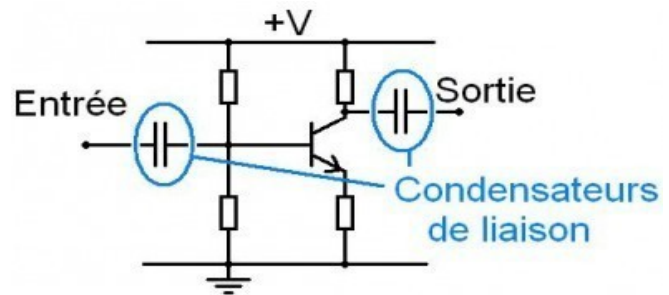
condensateur de filtrage dans une alimentation continue :

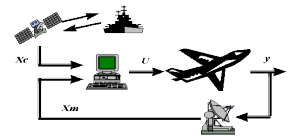


filtre RC et CR :

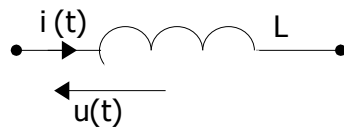


Condensateur de liaison :

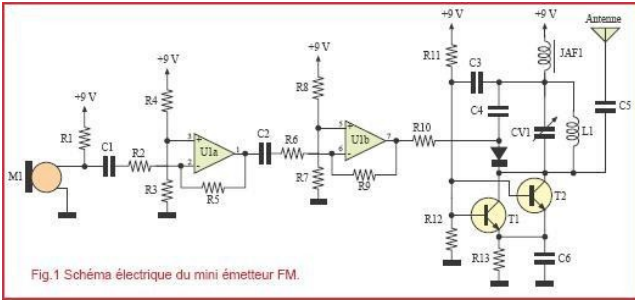




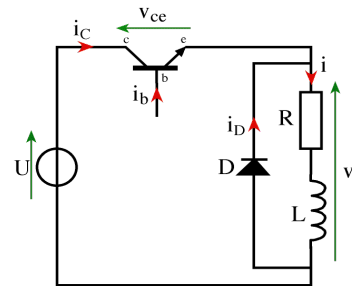
● inductance :



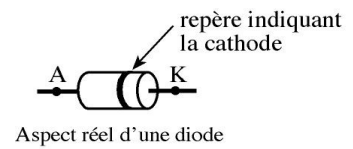
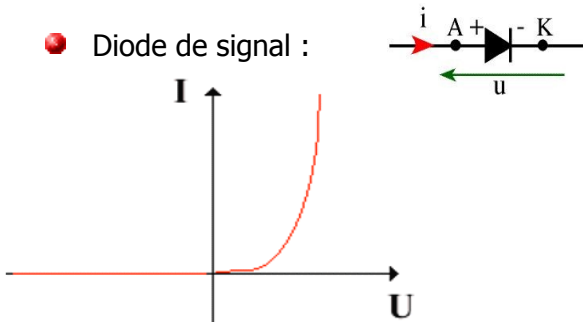
Utilisations :
émetteur FM à oscillateur LC :



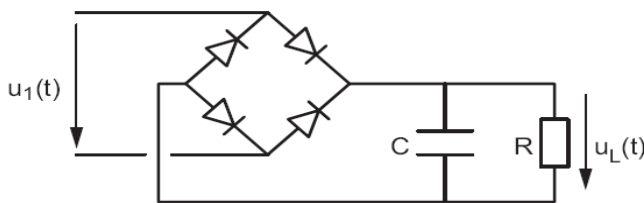
lissage du courant dans un moteur à courant continu :



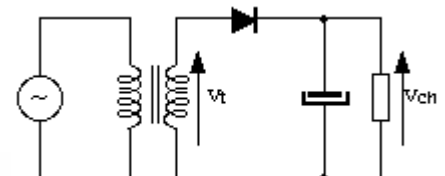
● Diode de signal :



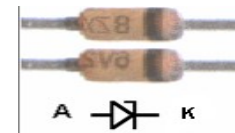
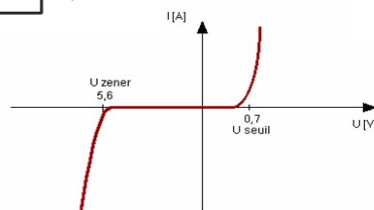
Utilisations :
redressement :



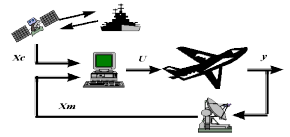
détecteur de crête :



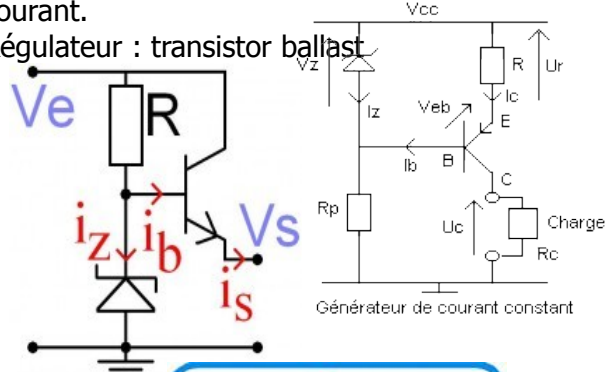
● Diode Zener :



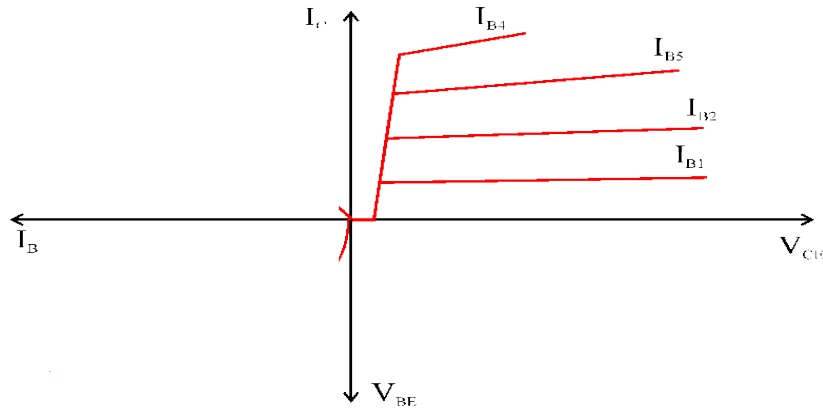
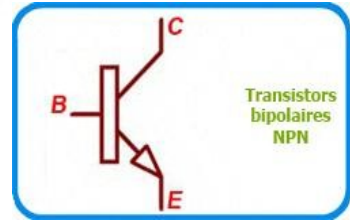
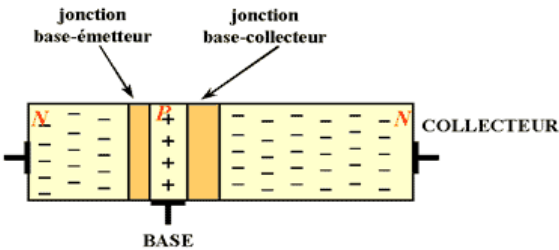
Utilisations :



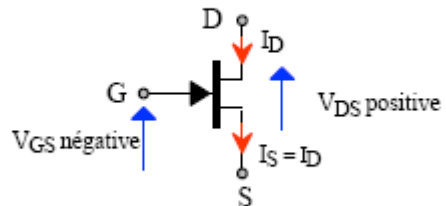
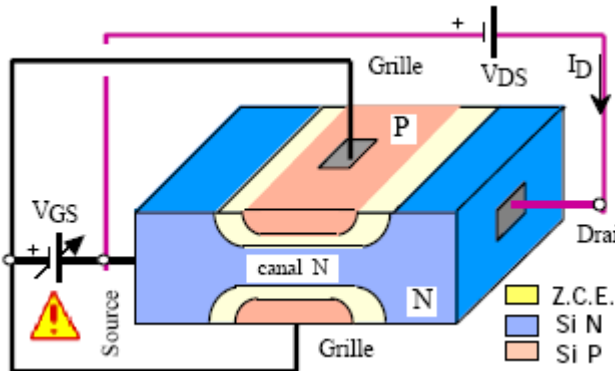
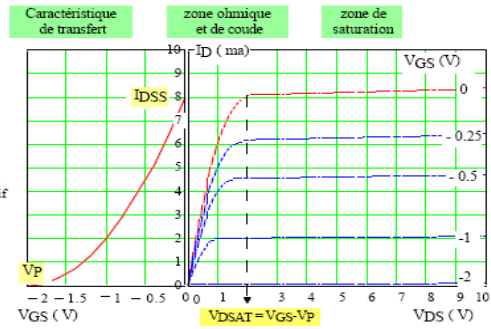
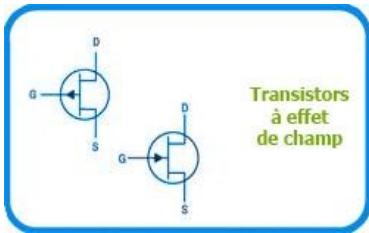
fixer un seuil : exemple du générateur de courant.
Régulateur : transistor ballast

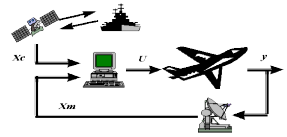


● Transistor bipolaire :

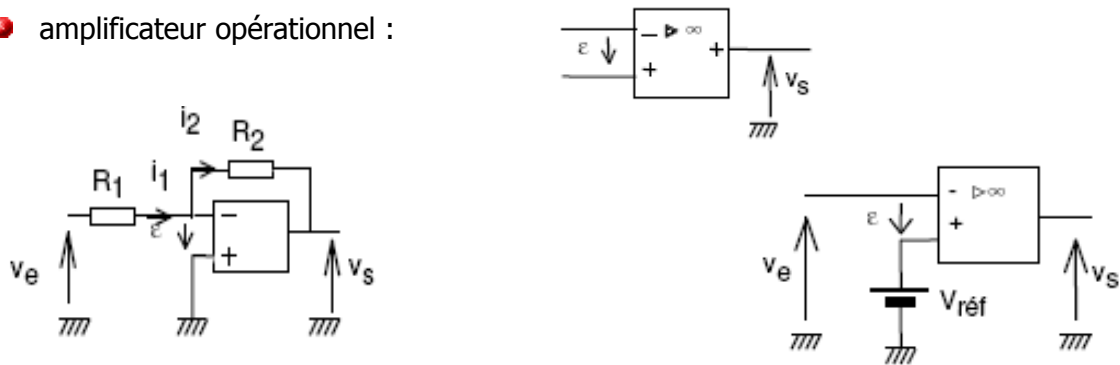


● Transistor à effet de champ : FET

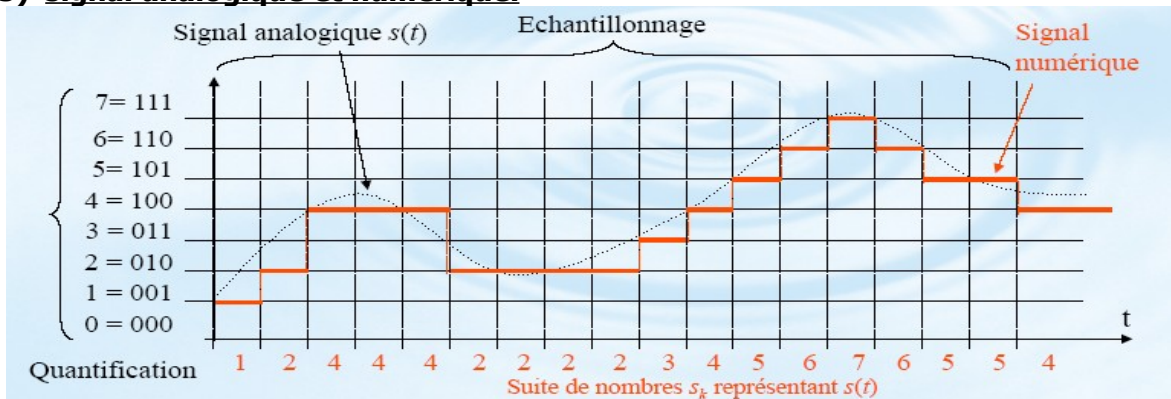




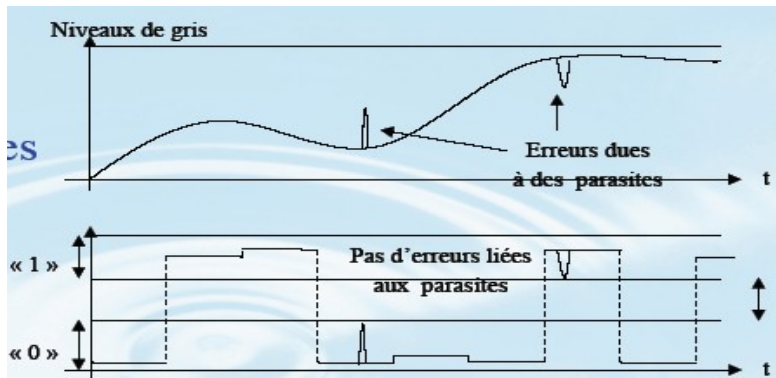
- amplificateur opérationnel :



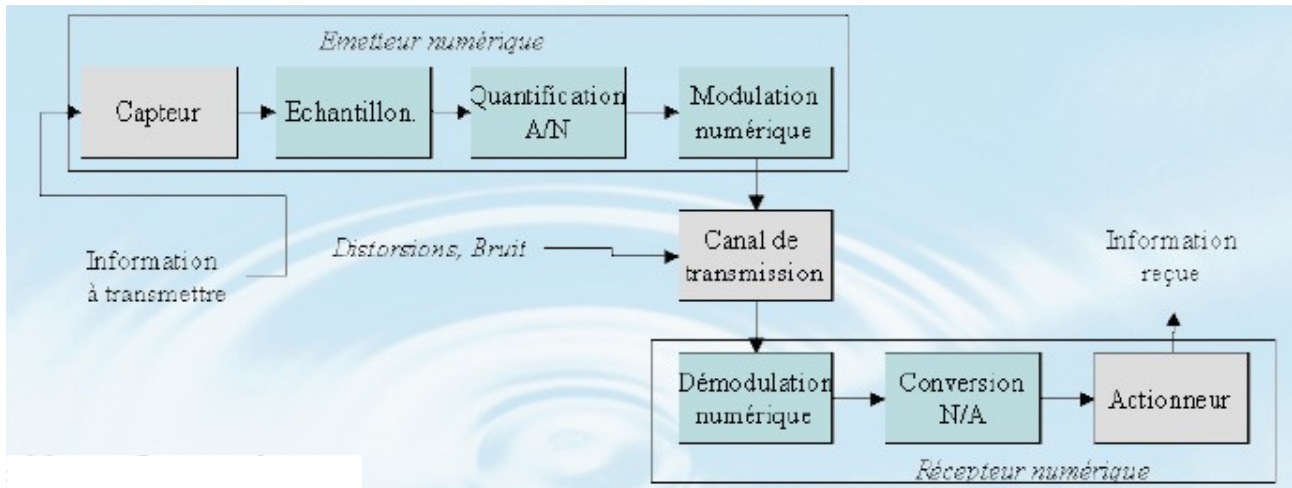
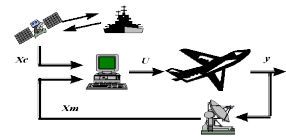
3) signal analogique et numérique.



- Intérêts du traitement numérique :

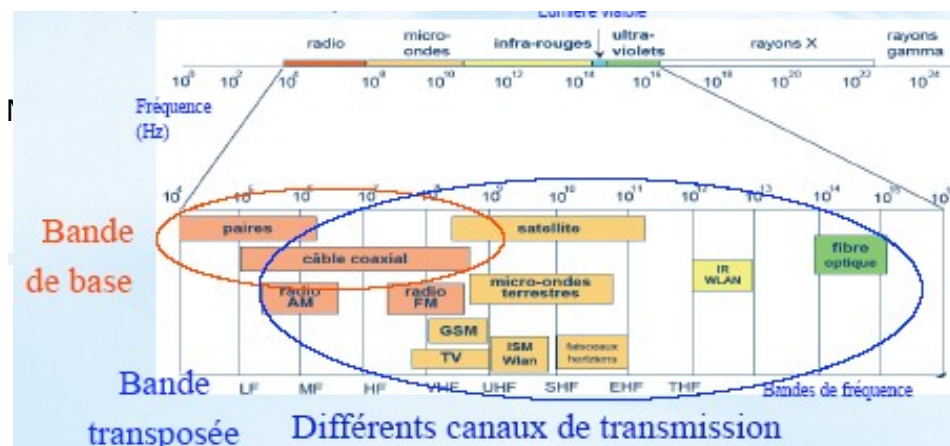
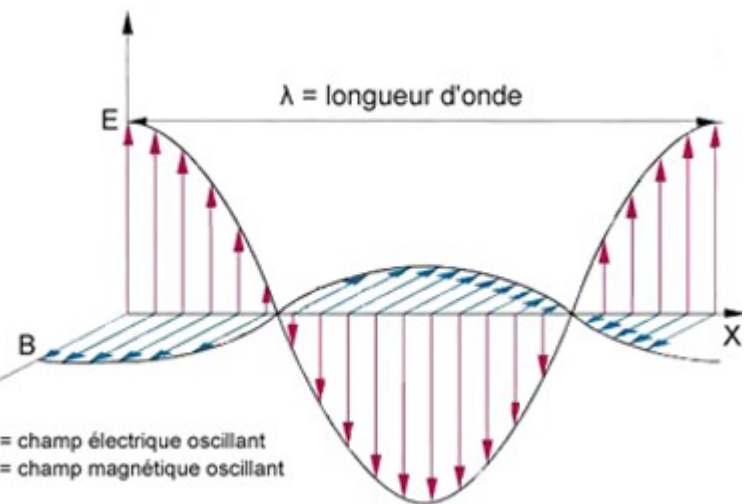
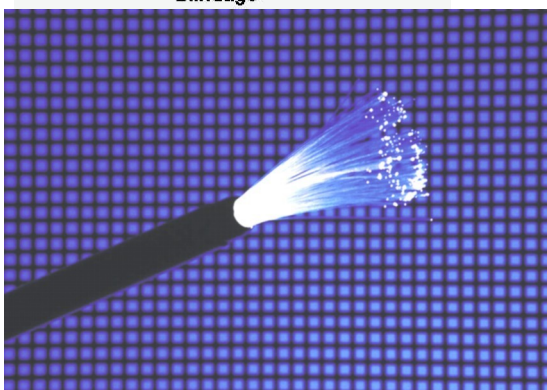
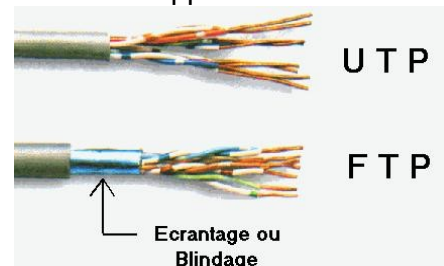


- Chaîne de traitement numérique de l'information :

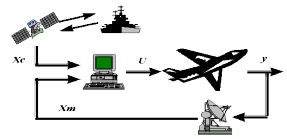


4) la transmission de l'information.

● Le support de transmission :



Exemple
connexion réseau
informatique
(filaire et Wifi)



Codage :

