- * Real-Time Operating System (Expand)
- * Multitasking operating system
- * Module Called Scheduler:

Schiddles different task and determines where task paid to process will executed on the processor.

- => That pa. Multil-asking is achieved in this way.
- => Scheduling is provides a prudicali

execution pattern.

=> In embedded systim went must be carried across strictly define time

=> The behavior of schedular must be predictable.

* This type of 0s with which have Schedular with predictable execution pattern is called RTOS*

Features of RTOS? i south last hard 1) context switching dalincy should be Short
2) Interrupt latincy should be short
3) Interrupt dispath latency should be 4) Reliable and time bound inter prous 5) Support Kernel pre-emption かり occasionally oursed. Responsibility is stated to RTOS Main Responsibility:

* Task management and
Cheduling * Interrupt Servicing

* Inter-process communication and synchronization Whit has villed & Memory Management will RTOS TYPES : DIVINE WINDS IN AND Abrah * Hard real time late delivery + soft real time + Real Real time + Firm Real time

Hard Real time: * System whom it is absolutely.
Imperative that responses occur within the required deadling. * Eg: Fliger control system. Soft of Real time: * system where deadline is important but which Still functions correctly is deadlines are occasionally missed. + Fg: Data acquistion System. Real-Real time: Milidianogest mary * system which are hard real time and response dime are very short * Eg : Dissi Missile guidance système Firm Real time it was but in which there is no benefit from late delivery of service * A single system can have all hard. soft and real-real time system

Automativ os * AUTOSAR - AUTOMOTIVE OPEN system AR Chitecture PANELLY & * development patership of automotive interested parties tound in 2003. of The objective to create and establish establish an open and standardixed softwar architecture for (ECUS) Automotive dectronic os objectives: photon o war ton ole à * Task de binner continue + Events + counter * Scheduler * Resource + Alarm + Hock function. Task: (Executing the function) - strove Two types - whitehor ext * Extended task + Basic Taskers to Jepresent want value dono shukoda ovirh of ozN & about 11 is

Extended task (There are 4 task State) * Running (1) 2A (1. Running + Ready (2) 3- Waiting 4. Buspender * waiting (3) Surpended (H) triskings (2) Ready Basic task: " bout esitring bales refill Busit tusk states & task states & Sworting & Running & was was doted 2) Redy 3) suspended. The varie to the said * do not have a waiting state (Running terminali) 201 4 preempt Start Supender Ready Lactivali. * Assigned to extended task. Events : Eg :- + Signalling of an expiring time * The avalibility of Resources + the reception of a message Country - (Belong to 05 App) & Represent count value + Use to drive scheduler and alarm if they are

Schedular: (Main compound of 1705) Ty types of scheduling to * Pre -emptively wowldown A Non-pre-emptive minimum atting to Byroup of task buteris war + Mixed Pre-emptive * RTOS USES Pre-emptive scheduling * The higher priority task can interrupt a running process and Enterrupted process will be resumed later A Use to activate task * Set event, sourcement counter and call-back alarm Hook function; A Sits used only in debugging + Not used in final product OS - Applications :-* 03 must be capable of supporting all they components * Different software components: * Trusted * Non-Trusted

Trusted:

* Allowed to run with monitoring
or protection feature assabled to runting

* Allowed direct access to the hardways

* Allowed direct access to the hardways Non-Trusted:

A Not Allowed to run with monitoring or protection feature disabled to runtime Application Vent Wires, y was all * Spin lock

* 100 (Intro 08 communication) + Microkernel Rtos Muscharder op Machilectuate * Sex levery , Liver chreen council coll-back alourn Horst franction : of the resident of the conducted of not used In final product Applications be capable of supporting all FLOWER TO X sharrogera) next + Different Eethous continues b 5/2 N } > potenti word &