

What is an embedded system?

Kizito NKURIKIYEZU, Ph.D.

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- An embedded system is an electronic/electro-mechanical system designed to perform a specific function using a combination of both hardware and firmware (software).

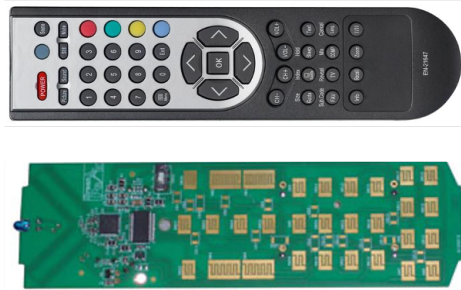


FIG 1. A TV Remote control

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- An Embedded System is a computerized system that is purpose built for it's application

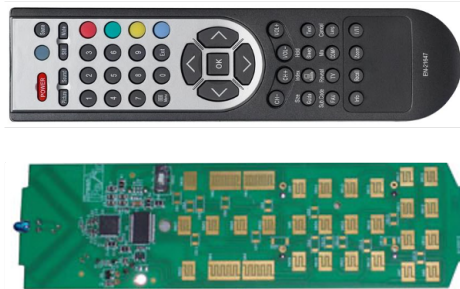


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- An embedded system uses a microprocessor (or microcontroller) to do one task and one task only.

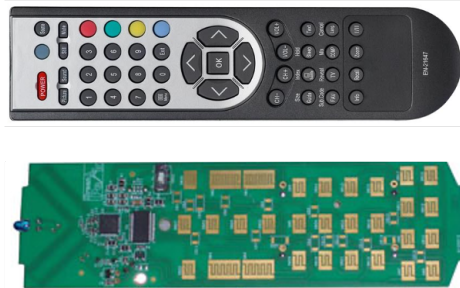


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- An Embedded System is a computerized system that is purpose built for it's application
- An embedded system uses a microprocessor (or microcontroller) to do one task and one task only.
- A remote control is an example of embedded system since the processor inside it performs only one task

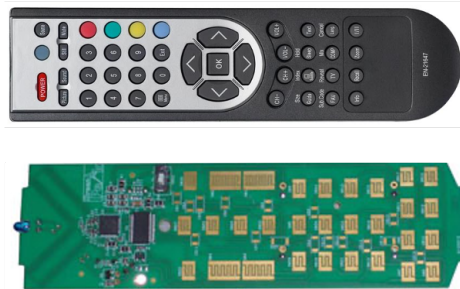


FIG 1. A TV Remote control

Embedded systems applications



FIG 2. Home appliances

Embedded systems applications



FIG 3. Office equipment

Embedded systems applications

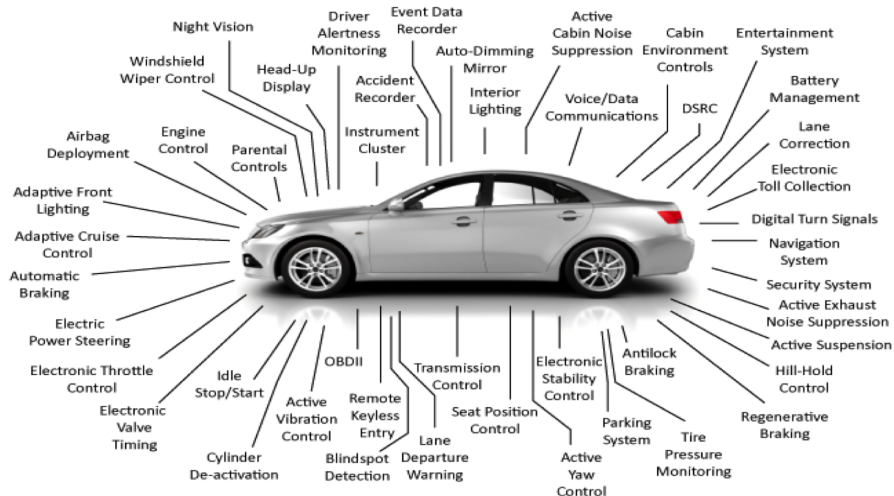


FIG 4. Embedded controllers found in a modern vehicle

Embedded systems applications

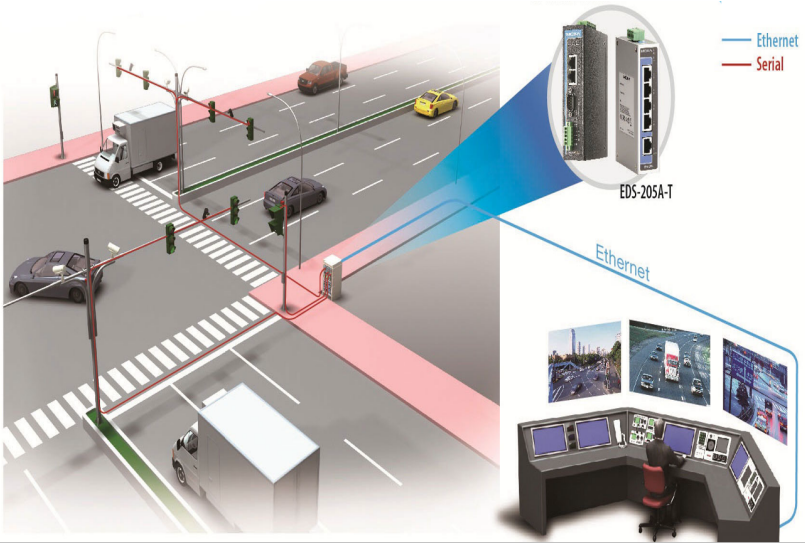


FIG 5. Traffic lights

Embedded systems applications

WIRELESS IMPLANTABLE MEDICAL DEVICES

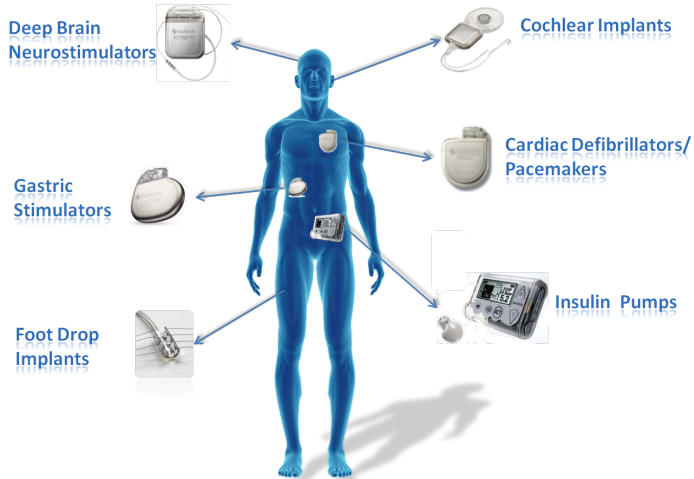


FIG 6. implantable medical devices

Embedded systems applications



FIG 7. Various biomedical devices

Embedded systems applications



FIG 8. Biomedical devices

Embedded systems applications

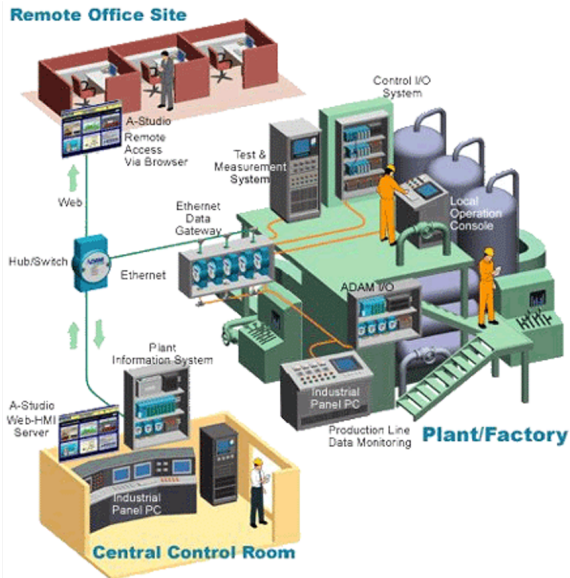


FIG 9. Industrial control systems

Embedded systems applications



FIG 10. Artist's conception of NASA's Mars Exploration Rover on Mars

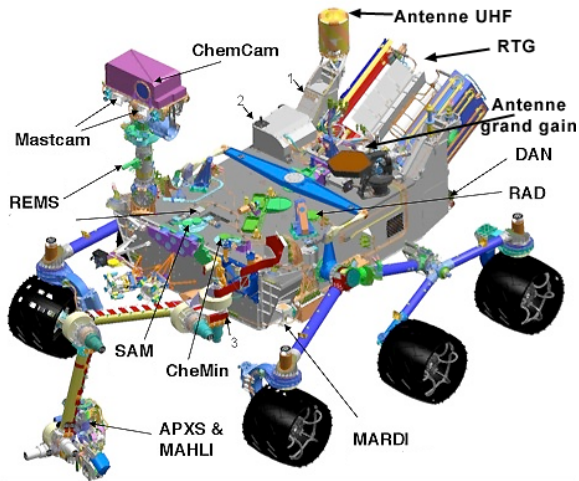


FIG 11. Instrumentation of the Mars Exploration Rover

Embedded systems applications

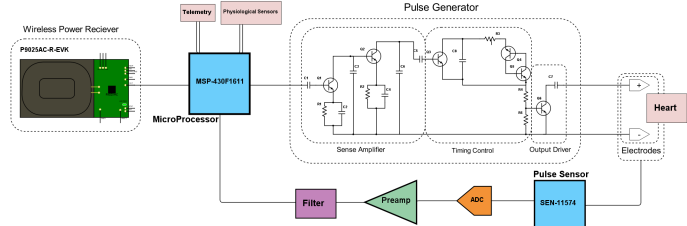
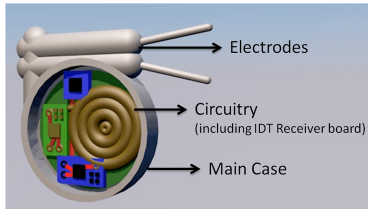
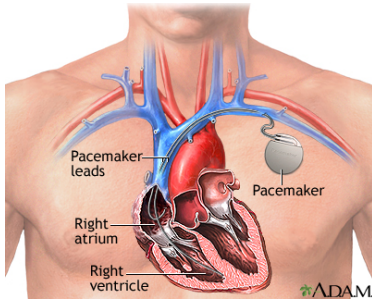


FIG 12. A pacemaker is a small, battery-operated device. This device senses when your heart is beating irregularly or too slowly. It sends a signal to your heart that makes your heart beat at the correct pace. In general, a heart pacemaker contains a small micro-controller and electrodes that connect the heart to the generator. The electrodes carry the electrical message to the heart.

The end