SNS COLLEGE OF TECHNOLOGY

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DEPARTMENT OF AGRICULTURE ENGINEERING
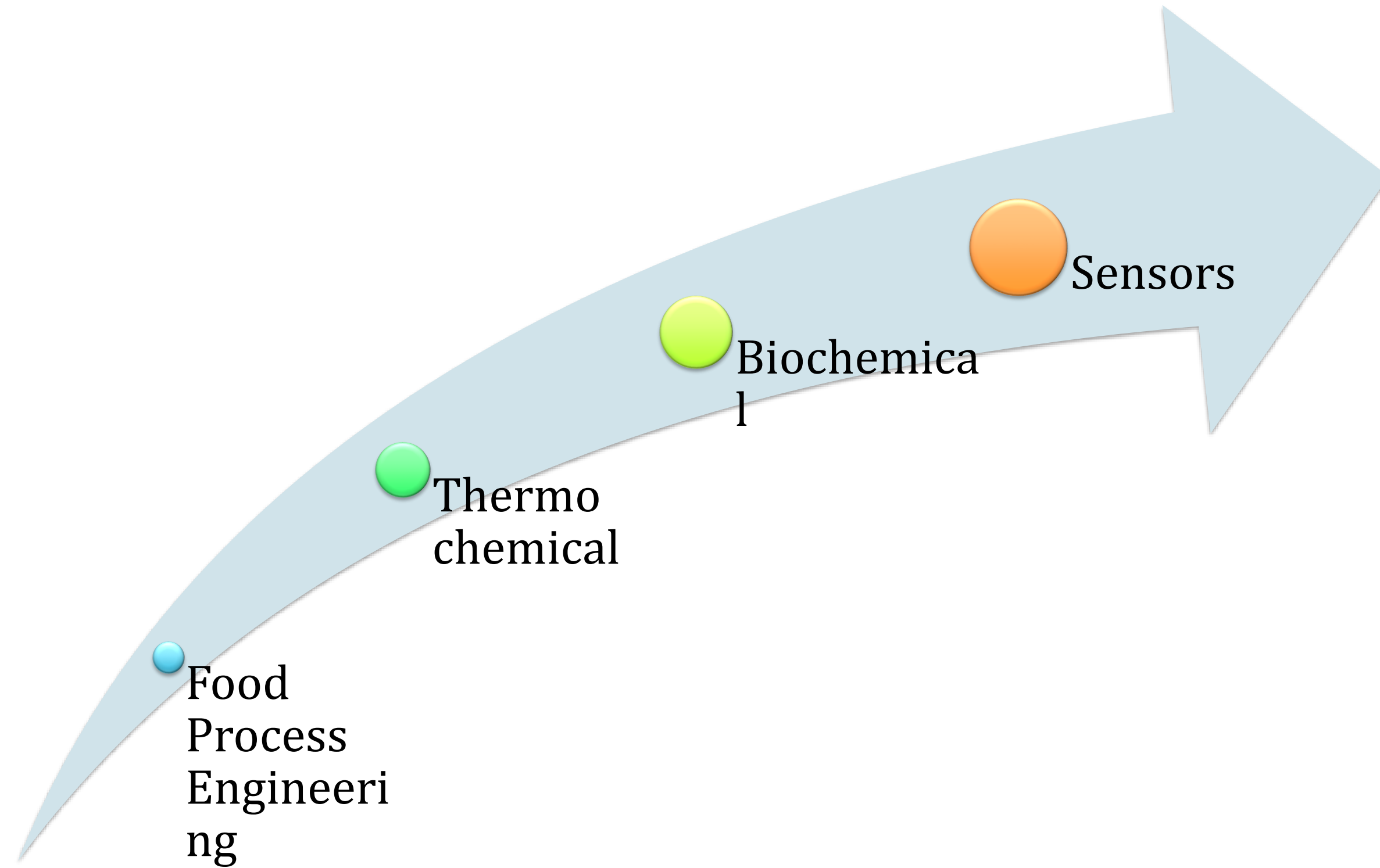
19AGT203 – AUTOMATION TECHNIQUES IN AGRICULTURE ENGINEERING

II – YEAR IV SEMESTER

UNIT 4 – VARIABLE RATE TECHNOLOGY

TOPIC 1– User Interface Analysis and Design

Last Class Review

Sensors

Biochemical

Thermo chemical

Food Process Engineering

Variable Rate Technology!!!

❖ Variable rate technology (VRT) is a new and powerful advancement in the precision agriculture revolution. VRT reduces input and labor costs while maintaining whole-farm profitability and increasing the sustainability of a grower's farming practices.

❖ Variable rate technology in precision agriculture focuses on many areas of crop production, including applying herbicides and pesticides, lime, gypsum and other common crop nutrients, seeding and detecting weeds and diseased crops.
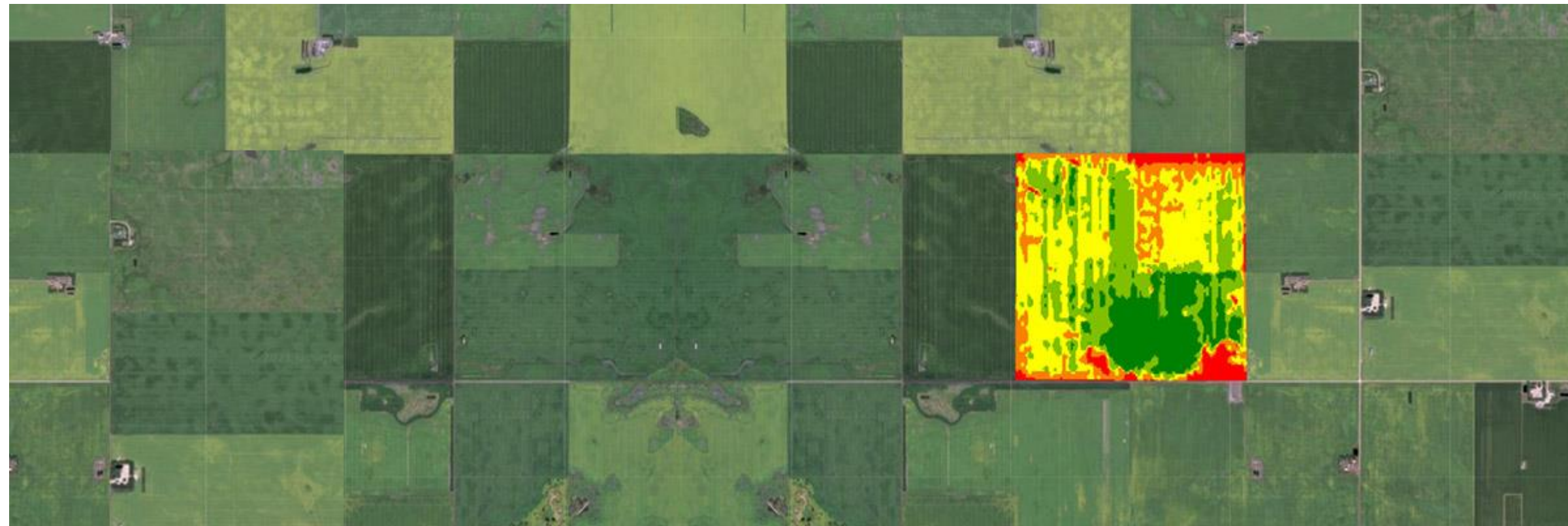
How does it work!!!

❖ VRT works by using GPS and GIS technology to locate precise locations in the field for material application, combined with collected data that informs a VRT-enabled piece of equipment, such as a seeder, sprayer or fertilizer spreader, exactly where and at what rates to apply products.
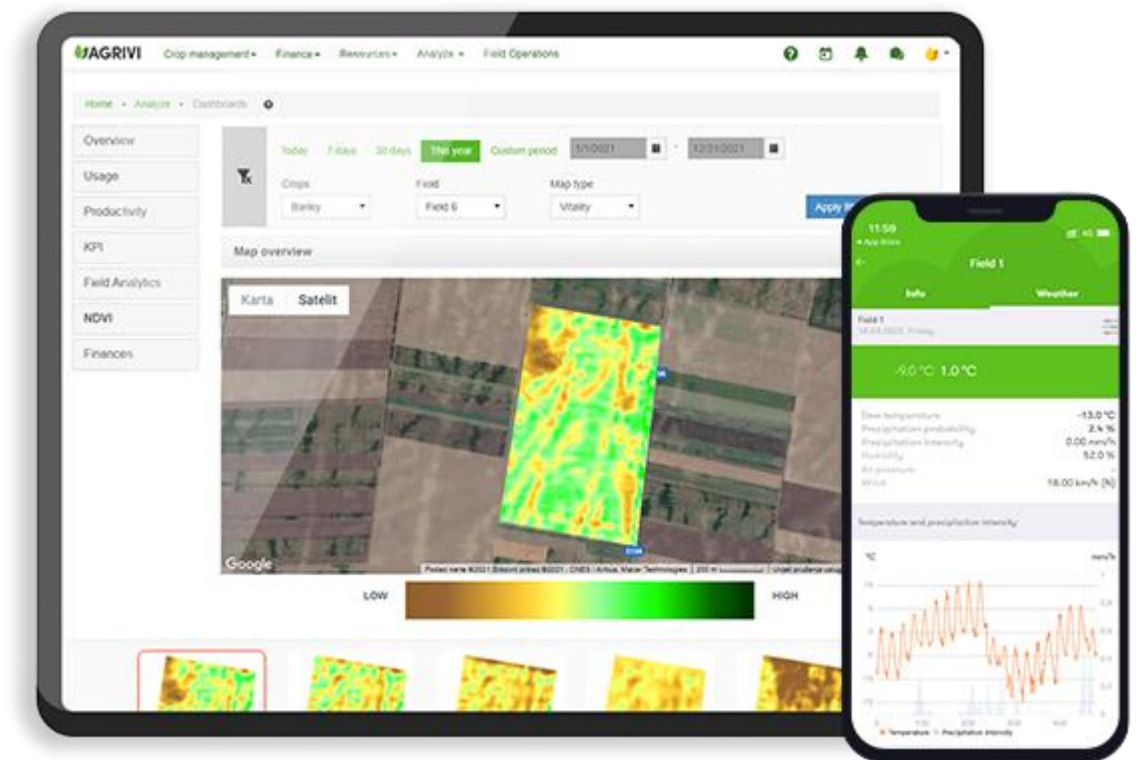
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How Does VRT Increase Farm Profitability?

❖ According to the United States Department of Agriculture (USDA), U.S. corn farmers that used VRT combined with yield mapping had the highest cost savings ($25 per acre) compared to other precision agriculture technologies such as guidance systems and soil mapping.

❖ VRT increases farm profitability by minimizing and maximizing the rate of crop inputs applied (such as fertilizer, weed control, seeds and water) based on predictive analysis of where those inputs will result in the most profitability. VRT, in essence, limits the effect of variability within crop production, producing an overall more profitable yield with less inputs needed.

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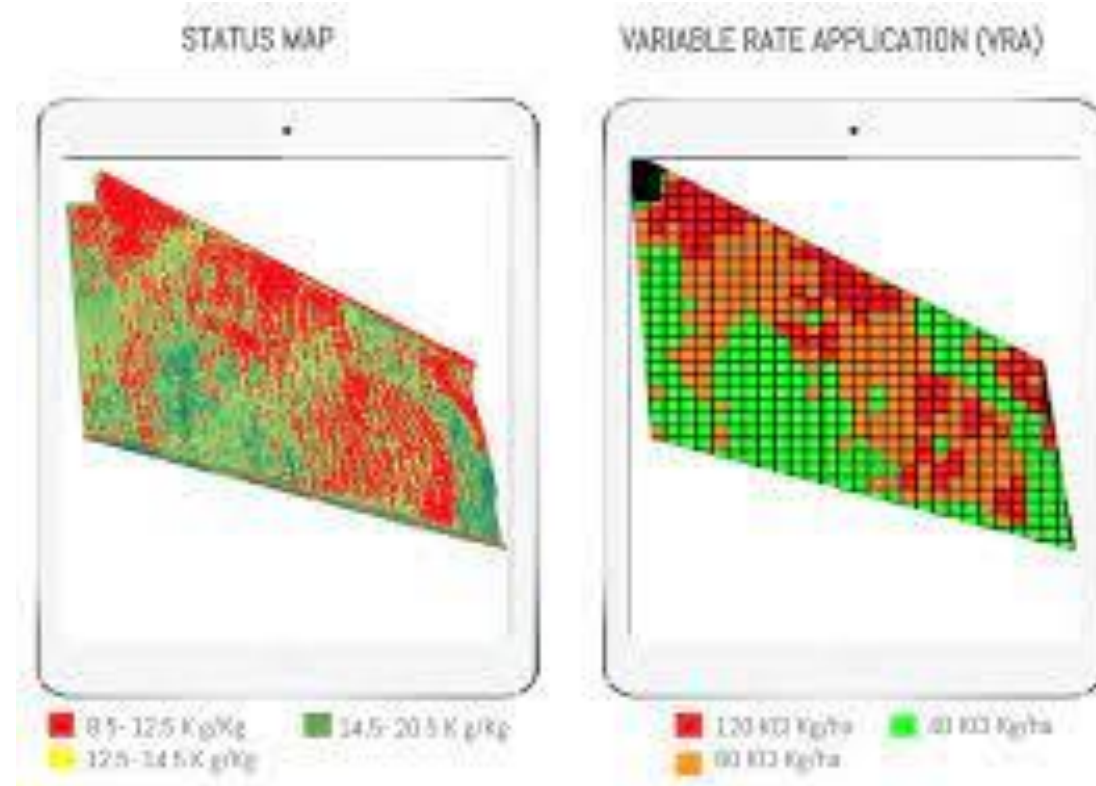Ms.R.MUTHUMINAL , AP/AGRI/SNSCT

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User Interface Design

❖ User interface design creates an effective communication medium between a human and a computer.

❖ Following a set of interface design principles, design identifies interface objects and actions and then creates a screen layout that forms the basis for a user interface prototype.

Why is it important?

❖ If software is difficult to use, if it forces you into mistakes, or if it frustrates your efforts to accomplish your goals, you won't like it, regardless of the computational power it exhibits, the content it delivers, or the functionality it offers. The interface has to be right because it molds a user's perception of the software.

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Steps….

❖ User interface design begins with the identification of user, task, and environmental requirements.

❖ Once user tasks have been identified, user scenarios are created and analyzed to define a set of interface objects and actions.

❖ These form the basis for the creation of screen layout that depicts graphical design and placement of icons, definition of descriptive screen text, specification and titling for windows, and specification of major and minor menu items.

❖ Tools are used to prototype and ultimately implement the design model, and the result is evaluated for quality.

THE GOLDEN RULES !!!

❖Place the user in control.
❖Reduce the user's memory load.
❖Make the interface consistent.

Place the User in Control:

❖Define interaction modes in a way that does not force a user into unnecessary or undesired actions.

❖Provide for flexible interaction.

❖Allow user interaction to be interruptible and undoable.

❖Streamline interaction as skill levels advance and allow the interaction to be customized.

❖Hide technical internals from the casual user.

❖Design for direct interaction with objects that appear on the screen.

Reduce the User's Memory Load!!!

❖ Reduce demand on short-term memory
❖ Establish meaningful defaults.
❖ Define shortcuts that are intuitive.
❖ The visual layout of the interface should be based on a real-world metaphor.
❖ Disclose information in a progressive fashion.

Make the Interface Consistent!!!

❖ Allow the user to put the current task into a meaningful context
❖ Maintain consistency across a family of applications.

See You at Next Class!!!!

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