

Model-View-Controller Architectural Style

- **Model-View-Controller** (MVC) is the mainstream architectural style employed in most **interactive systems**.
- The MVC style is used in **interactive applications** that require flexible incorporation of human-computer interfaces.
- Introduced by Trygve Reenskaug in 1979.
 - First used in the Smalltalk-80 framework
 - Used in making Apple interfaces (Lisa and Macintosh)
- Architectural style or design pattern?

MVC is often thought of as a software design pattern. However, MVC encompasses more of the architecture of an application than is typical for a design pattern. Hence the term **architectural pattern** may be useful (Buschmann, et al 1996).

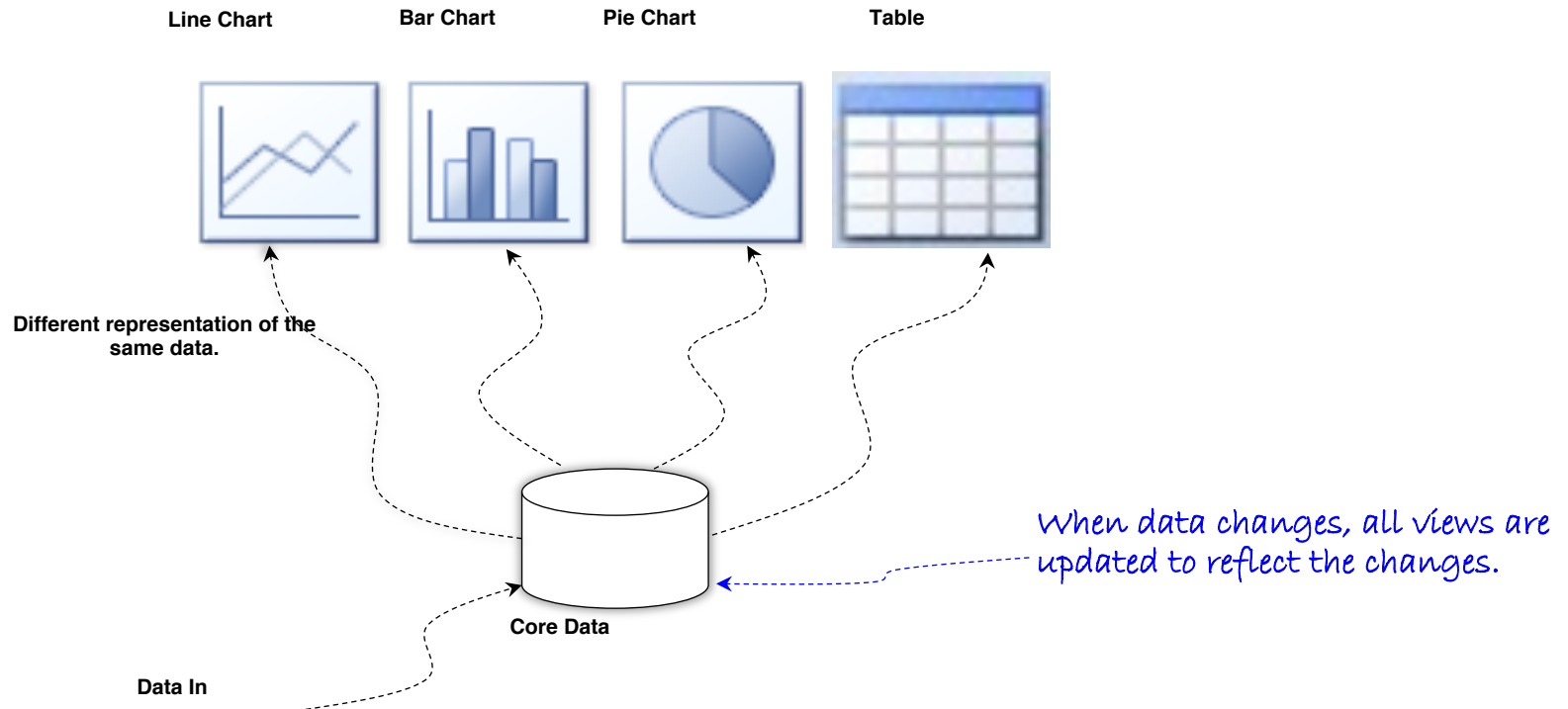
MVC Components

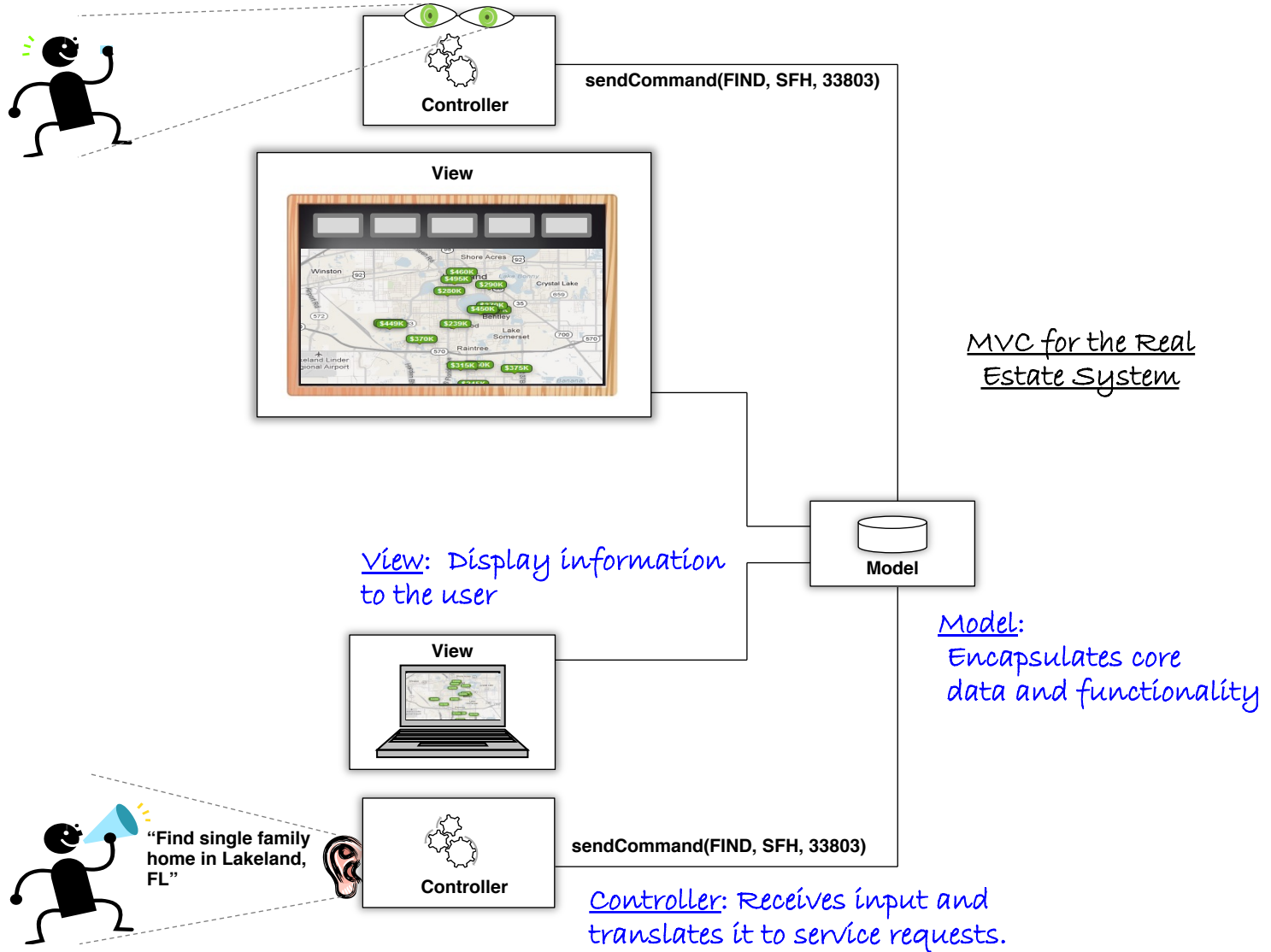
- With the MVC, systems are decomposed into three main types of components:

Component	Description
Model	Component that represents the system's core, including its major processing capabilities and data.
View	Component that represents the output representation of the system (e.g., graphical output or console-based).
Controller	Component (associated with a view) that handles user inputs.

A Typical MVC Application

Consider the popular example where data needs to be represented in different formats.



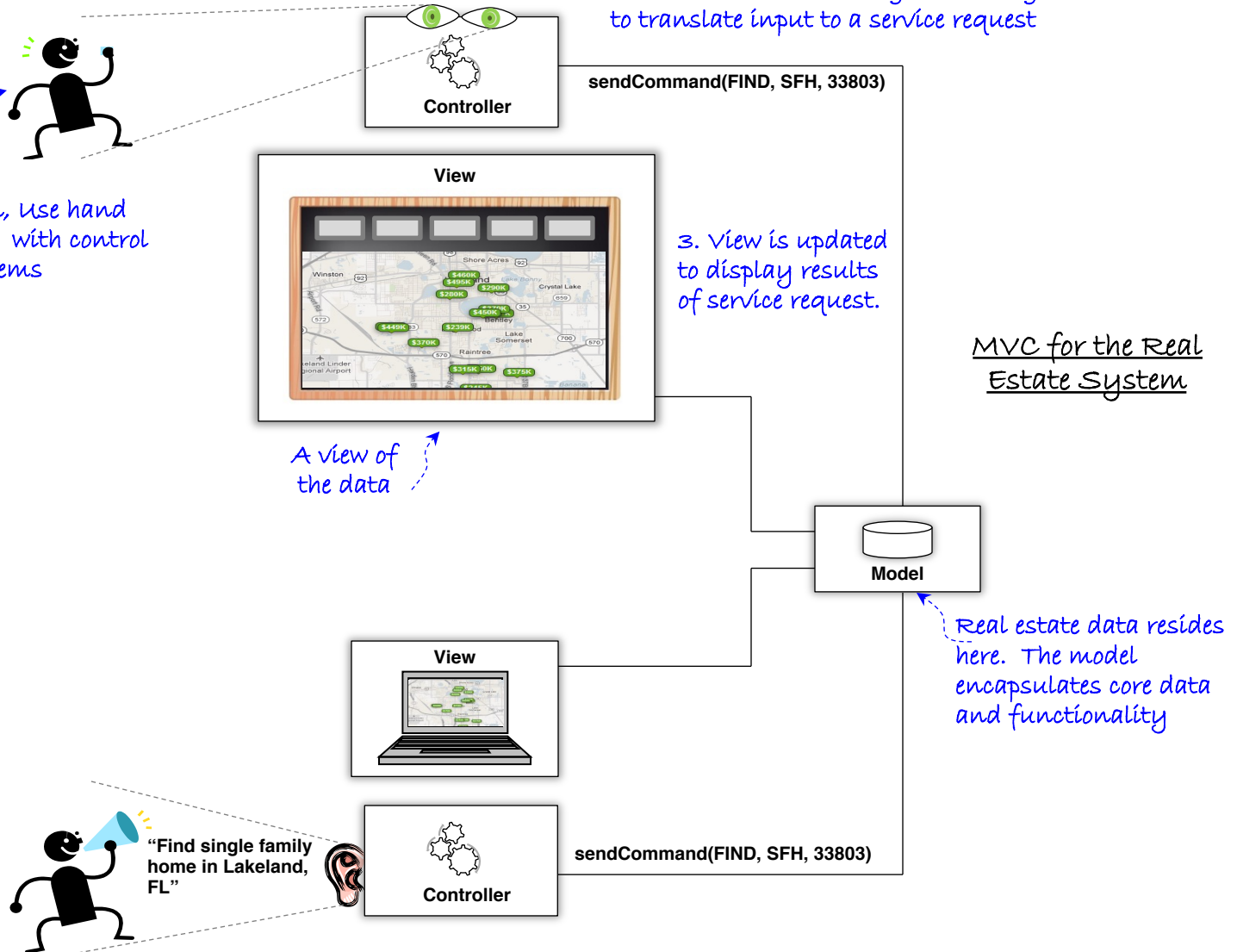


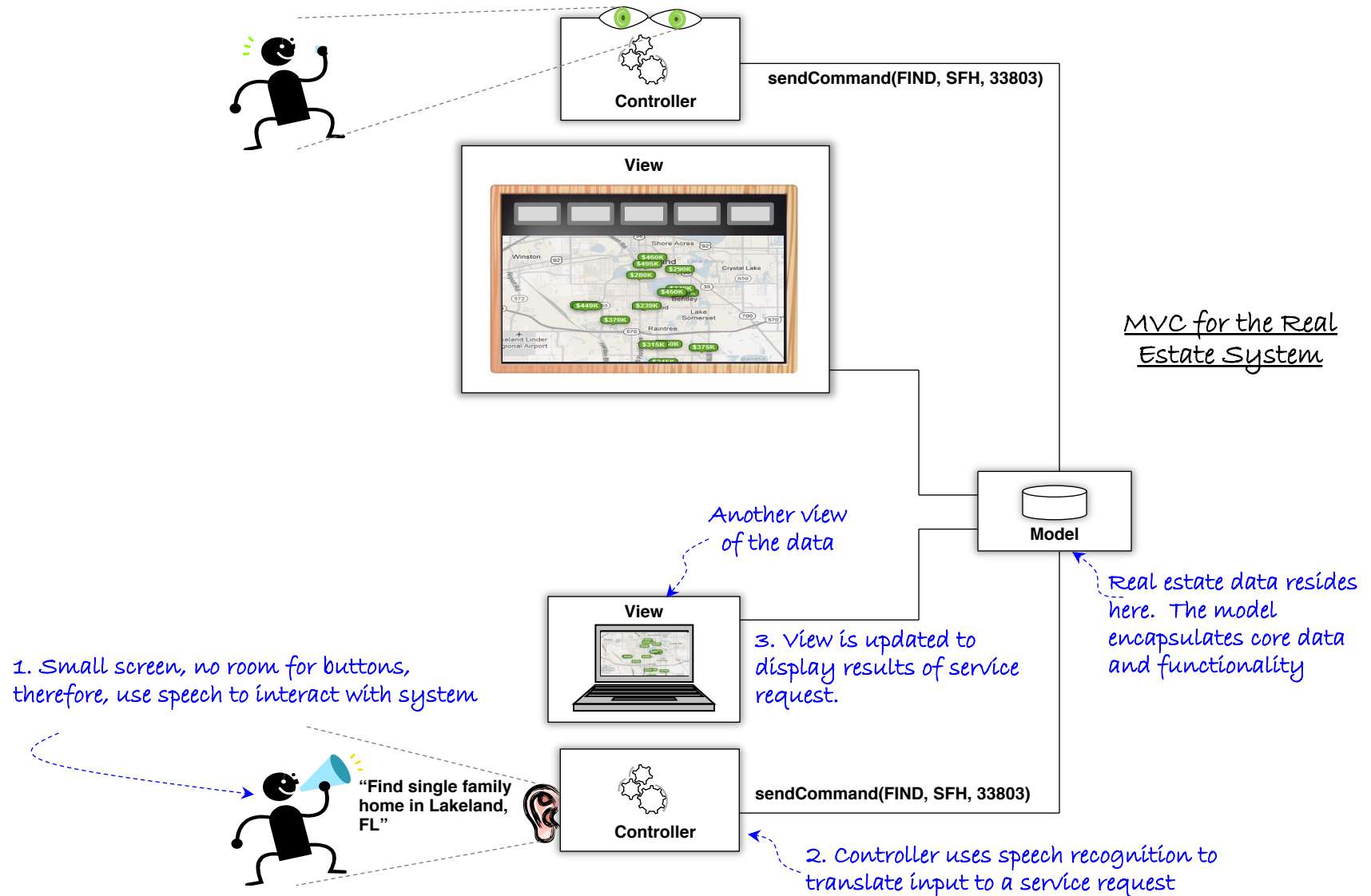
1. Very large screen, use hand gestures to interact with control buttons in the systems

2. Controller uses hand-gesture recognition to translate input to a service request

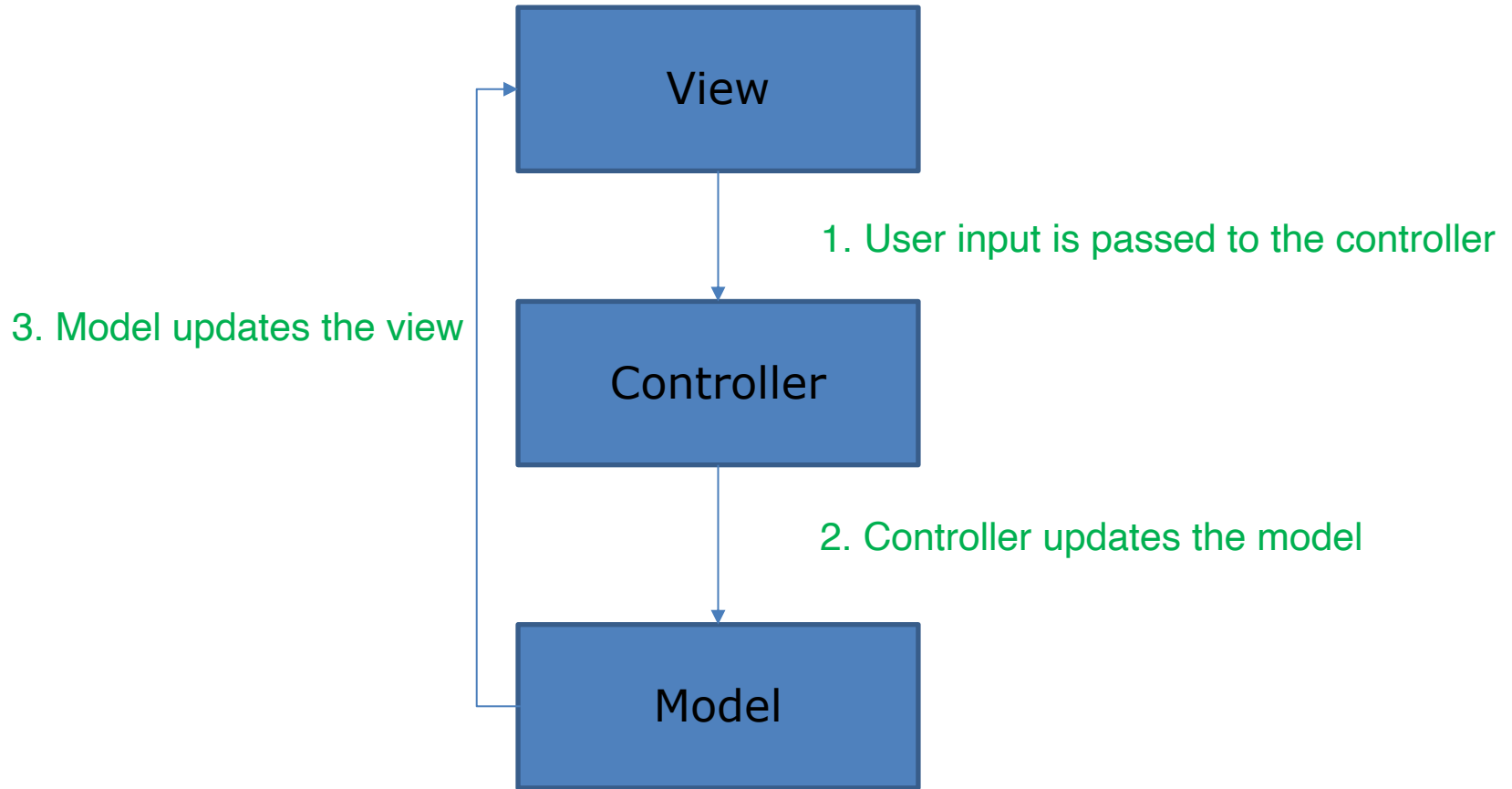
3. View is updated to display results of service request.

MVC for the Real Estate System

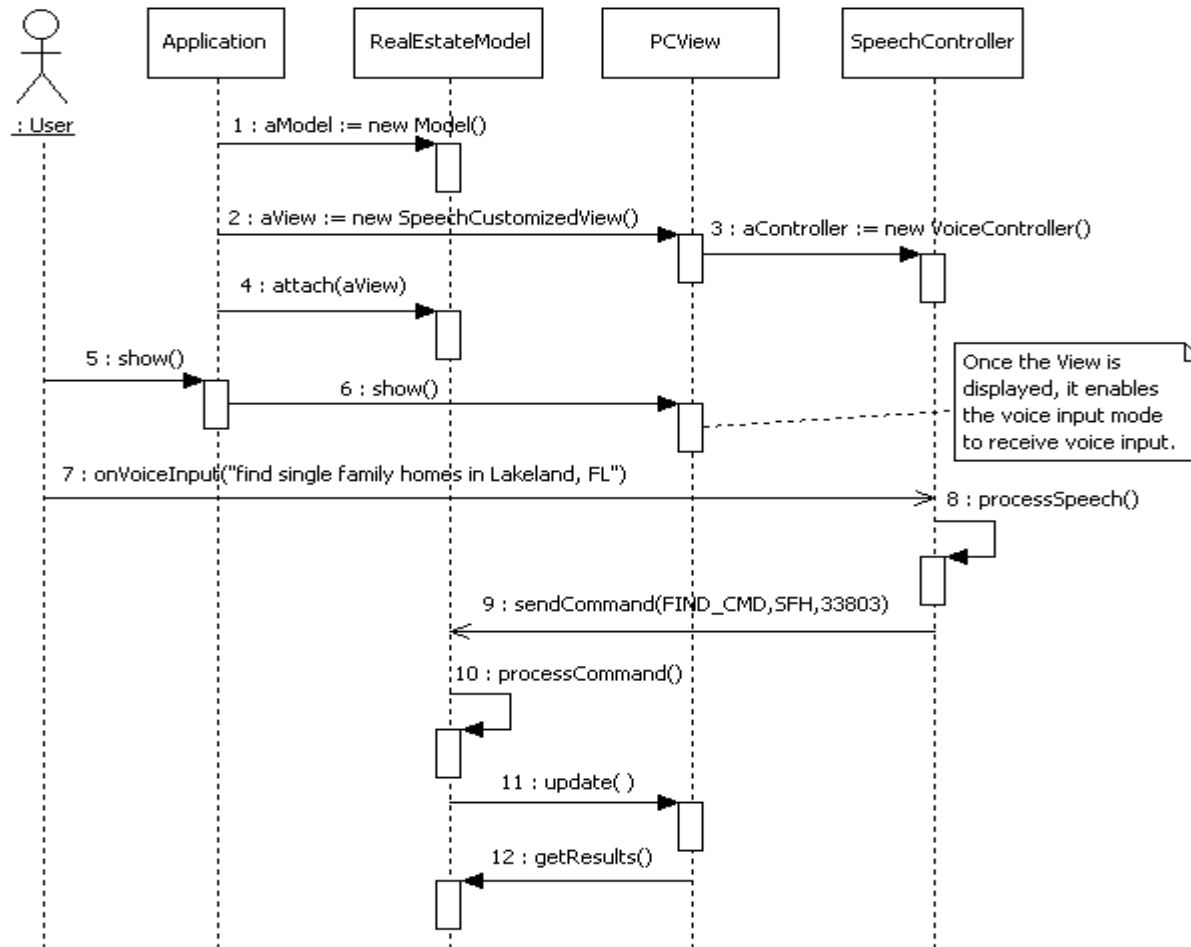




MVC Component Interaction



MVC Sequence Diagram



MVC Benefits

- The design of interactive applications that need to support multiple interfaces is based on a modular, disciplined approach.
 - Contrast: monolithic approach
- Easy to exchange, enhance, or add additional user interfaces.
- Facilitates parallel development.