

This block diagram represents System 2, highlighting its key components and functionality. Power is supplied through the input voltage pin (5), jack (9), or USB port (10), with output voltages provided by 5V (7) and 3.3V (8) pins for connected devices. The system uses a microcontroller (ATmega2560) as the central processing unit, connected to various sensors such as fire, gas, and temperature/humidity sensors to detect environmental changes. This integration ensures comprehensive monitoring, automation, and quick responses to emergencies, enhancing home security. Digital pins (1) handle input and output digital signals, while analog pins (4) read analog inputs from sensors. Outputs include relays controlling lights, fans, and emergency pumps, with a servo motor for mechanical control. An Ethernet shield with RJ45 enables remote communication. The microcontroller chip (3) processes inputs and controls outputs. The system incorporates RFID cards and readers, as well as a keypad for secure access. 4 This diagram highlights the key components of an Arduino board. The reset button (2) restarts the Arduino, ensuring a fresh start for the system. These features enable versatile applications in home alarm systems. The ground pin (6) ensures a stable electrical circuit. An LCD provides real-time information.