PROJECT 1 - ARDUINO ALARM CLOCK

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**Design/Description -**

In this project, you will build an alarm clock using an Arduino board and a DFPlayer Mini audio module. The alarm clock will have 5 alarms that can be set and controlled through a mobile app using Bluetooth communication. Each alarm will play a specific audio file stored on a microSD card connected to the audio module. The app will allow users to set and modify the alarm times, select the audio files for each alarm, and turn alarms on or off. The clock will display the current time and will be set using buttons on the Arduino board. The project will involve hardware and software design, including building the circuit, programming the Arduino board, and developing the mobile app.

**Components/Materials -**

* Arduino board: This will serve as the main controller for the alarm clock - Arduino Uno or the Arduino Nano.
* Real-time clock (RTC) module: This module will keep track of the current time and date even when the Arduino board is turned off - DS1307 or DS3231.
* Bluetooth module: This module will allow the alarm clock to communicate with the mobile app - HC-05 or HC-06.
* Audio module: This module will allow the alarm clock to play audio files - the DFPlayer Mini
* Speaker
* LEDs or LCD screen: LEDs to indicate the alarm status (e.g., whether an alarm is on or off) or an LCD screen to display the time and alarm settings.
* Power supply: A battery or a USB cable connected to a power source.
* Jumper wires and breadboard
* Resistors and capacitors