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| **Sr.**  **No.** | **Title** | **Author,**  **Date Published** | **Problem Addressed** | **Advantages** | **Disadvantages** |
| 1. | Location Based Attendance Monitoring System | Aayushi Singh, Tanya Goel,  Astha Singh  -May 2020 | Monitoring attendance for all students using teachers mobile phones. | The records are stored in the database and scope for biometric authentication. | Real time live tracking for students not included. |
| 2. | Geofencing Based Attendance Monitoring System | A.O, Dosumu  -January 2021 | Implements model for monitoring attendance of students in large classes using geofencing. | Highly accurate location co-ordinates (up to 10 decimal points) | No tracker system for individuals. |
| 3. | Smart Geofencing: An Inventive Mobile Marketing Strategy | Aagy Paulose, Nurjahan V A  -06 June-2019 | Marketing based Service with geofencing and in creating smarter geofences. | Shows potential scope for geofencing. | Focused on marketers for recommending places and not on collecting data. |

**Literature study and limitations of existing system**

**Abstract**

* Smartphones have become increasingly popular among teenagers and are always with them.
* Attendance tracking can be taken to the upgraded level through new technologies like geofencing.
* System aims to capture attendance smartly by determining students location.
* Geofencing is a location-based service that allows a particular entity to perform actions based on smartphone users location when they enter a predetermined location, known as a geo-fence.

**Proposed Methodology**

* Creating a virtual geo fence boundary of the campus/workplace using longitude/latitude data and marking it on maps
* Creating a user app which streams user location to server once app is turned on .Server checks if the location co-ordinates lie withing the geo-fencei
* If the user's longitude and latitude falls under the range of specified classroom/workplace then the attendance is considered to be valid.
* Creating a Admin side application which allows admin to view active users within the boundary,name,age,timestamp,Last seen location of the user inside the campus, check-in/checkout time of the user,
* Further user side app can be improvised to add schedule updates, attendance notifications etc.
* The admin can generate attendance which are stored in the database in graphical ways which helps in proper analytics.

**Technology Stack**

* MOBILE APPLICATION:FLUTTER FRAMEWORK AND DART
* BACKEND SERVER:NODE.JS
* THIRD-PARTY API:GOOGLE MAPS(LOCATION SERVICE)
* DATABASE:SQL/NOSQL(DEPENDS ON USECASE)

**Detailed Problem Statement**

**1. Purpose**

The ultimate goal of our application is to transform current attendance taking systems by involving and combining latest technologies and advancements in geo-fencing.

The application intends to provide a common platform for teachers and professors to gather seamless attendance and track students during school hours if they leave the campus or don’t attend scheduled lectures.

**2. Scope**

The geo-fencing application includes real-time tracking of students mobile phones in a given geo-fence (in this case, college or university). The application extends its capabilities by providing downloadable attendance sheet after the teacher has concluded the lecture. By providing timetables and lecture scheduling features, the application further extends its scope towards providing a common platform for attendance systems.

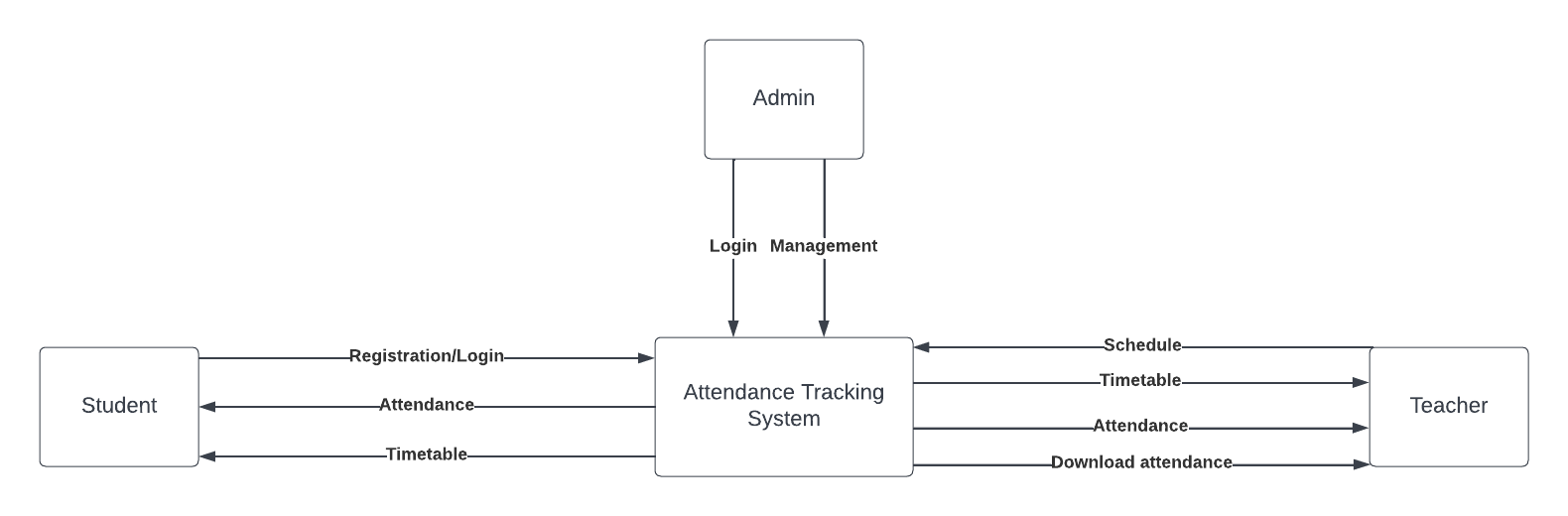
**3. Intended Audience**

The intended audience include all educational organizations that want to conduct and maintain attendance for all students based on geo-fencing on a single application.

* 1. **Benefits of the system:**

Benefits of the system include better accuracy in attendance tracking, convenient maintenance of all attendance records, on par attendance systems for educational institutes with technologies used in corporate businesses.

**DFD-0 diagram**

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