

RESEARCH AND DEVELOPMENT

COMPUTER SCIENCE AND ENGINEERING DEPARTMENT

Details of R&D Projects

1. Project title: Smart Mirror

Project Team:

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Project Guide: Mr. Mohammed Abdul Raheem, Assistant Professor, CSED
Sanctioned Amount: Rs.36,000/-

Smart IoT devices are built to stand the test of time, their only motive is to make Human Lives easier. Project Smart Mirror is Inspired by the future, It's an AI-Powered Mirror from the ground up. Our Project Focuses on Adding Convenience to Our Daily lives. Let's see how.

The Mirror is 40 inches in size, It is backed up with a crisp 1080p Display and is attached with a 720p Webcam and is powered by a raspberry pi 3b. The Device in its Final form will be able to interact with us just like a human.

The Smart Mirror can Verify Distinctive Faces, by doing a scan and recognizing facial data that has been collected when signing up for face recognition by the user. It greets a simple Good Morning and then proceeds to give personalized news and a run-down of all the events in the user's Google calendar, meetings, and tasks for the day. It displays temperature and can tell a funny joke, all thanks to its integration with Google API.

Overall, Google API provides us with the flexibility for integrating our facial modules and makes Project Smart Mirror a reality, creating a new IoT device to be your morning friend.



2. **Project title: ISMART – AUTOMATED CLASSROOM USING INTERNET OF THINGS**

Project Team:

1. Mohasin Ahamed Chinnapattan (1604-14-733-094)
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3. Ayesha Nazneen Ahmed (1604-15-733-007)
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Project Guide: Dr. Uma Dulhare. Prof., CSED

Sanctioned Amount: Rs.45880/-

The main objective of the ISMART classroom project is to find and create a best practice standard for implementing modern, academic curricula in an international, multidisciplinary colleges setting and also to reduce the energy consumption. Objectives of the project include:

- Switching the Lights/Fans ON/OFF based on the number of people and their location in the class.
- Reduces the power consumption.

Displaying the information of the ongoing class outside the classroom



3. Project title: Collision detection and prevention

Project Team:

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Project Guide: Dr. Fahmina Tarannum

Sanctioned Amount: Rs.13000/-

The proposed strategy is used to avoid accidental rate by predicting the occurrence of an accidents by monitoring the distance among different vehicles in an area under consideration. The system is depicted in figure 1, which consists of an embedded device whose main purpose is to alert the driver based on the risk occurred. This is accomplished using LEDs, for glowing, and a buzzer which buzzes. The buzzer buzzes as the risk of collision increases. In addition to this process, the embedded device is also responsible for applying brakes if no action is being undertaken by the driver within a certain time period. The braking systems of the vehicle are implemented on bikes and are both manual and automatic. Along with the embedded device, it's extremely crucial that the driver is also being given control over the brakes and not just the embedded device solely. Through combination of both i.e. the driver and the embedded device, we believe accidents are likely to reduce drastically. Accidents are occurring due to various factors like: Vehicle losses its balance and topples Vehicle skids when either of the tires slows down or stop rotating or sudden appearance of an obstacle (vehicle, person or a thing).

The aim of the proposal is to slow down the source vehicle gradually or gets the vehicle to halt depending on the distance existing in between the source and target vehicle. Minimum speed limit (from where the Collision Detection mechanism starts to work) is provided. E.g. 10-20kmph. Maximum range in speed is increased to 80kmph or less. It detects the target vehicles at all times. Warns the driver and gives time for him to react to the risk. If no action is undertaken, then the system does its job. It simultaneously warns informs the other vehicles approaching the source vehicle from the rear. The system is applicable in cars like Audi A8, Volvo S60 II etc.

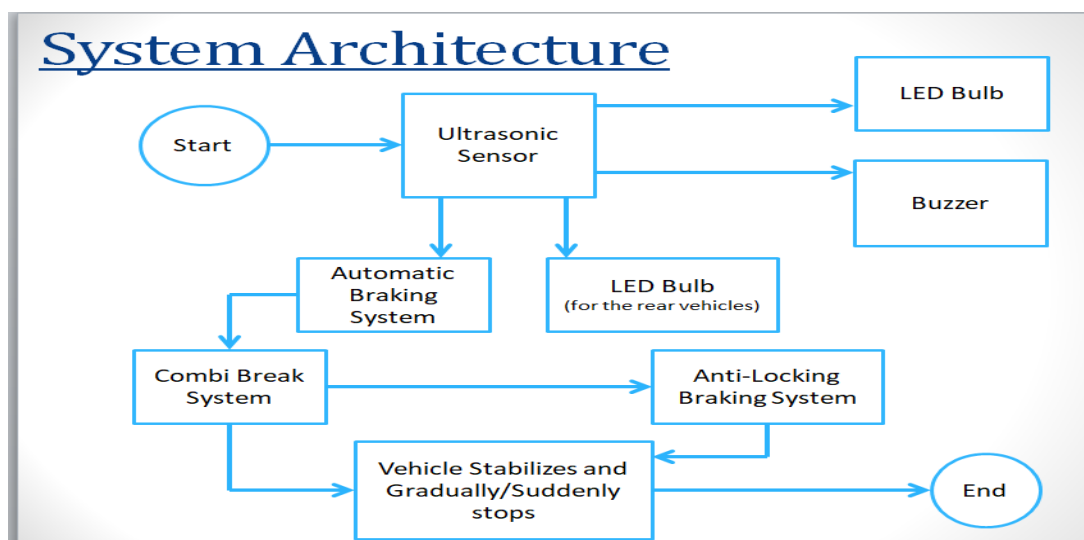


Fig. 1: Architecture of Collision detection and prevention system