Dayananda Sagar University (DSU), Bengaluru participated in the Smart India Hackathon (SIH) 2020, Software Edition, a 36-hour non-stop hackathon, organized by MHRD and AICTE. It’s a proud moment for Dayananda Sagar University as it bagged the first place by providing an innovative and cost-effective solution for a problem statement published by the Govt. of Goa.

Smart India Hackathon, organized since 2017 is the world’s biggest open innovation movement, a nation-wide initiative which provides young talent with a wide platform to solve major issues currently faced in daily lives, thus, inculcating both the culture of product innovation and a problem-solving mindset. National recognition and visibility across all premier institutions in India are the vital aspects of SIH.

The hackathon is a common platform for talented youngsters from all over the country to showcase out-of-the-box solutions to varied problem statements in both hardware and software editions.

SIH 2020 involved almost all of the IITs, Universities, engineering colleges spread across the country reaching out to lakhs of students. Each team selected was motivated to come out with an innovative idea in building smart solutions for real-time problems of our country. SIH 2020 had published 344 software and 145 hardware problem statements (PS) submitted by Central and State ministries, departments, firms and NGO’s. Five best teams for each PS were selected for the grand finale. Due to the COVID pandemic, the grand finale was organized on a virtual platform. It was a 36 hours of continuous programming hackathon handled by 41 different nodal centers.

Honorable Prime Minister of India, Shri Narendra Modi, addressed the participants via live video conference and congratulated the young minds for proposing solutions that could solve challenging problems and stand by the country. During the hackathon, each nodal center carried out mentoring and evaluation rounds.

The DSU team of third-year BTech students from the Department of Computer Science and Engineering with the team name: ENIGMAD had participated in this event under the guidance of Prof. Roopashree S, Assistant Professor. The team got selected for the grand finale of SIH 2020 evaluated under the nodal center VelTech, Chennai, Tamilnadu.

The DSU Team (EnigmaD) secured FIRST PLACE in the Grand Finale of SIH 2020 for the “Pothole Challenge” problem statement from the Government of Goa.

**Problem Statement Description:**
Goa has faced the rage of rains this year and potholes are the biggest problem which the government is tackling. Now problem lies in the fact that concerned departments are not able to co-ordinate to resolve the issue.

**Issues:**
(a) Fundamentally there is disconnect between civic agencies, people and elected representatives  
(b) The aim is to build a mobile based dynamic reporting system which will facilitate flow of information among all concerned stakeholders  
(c) The aim is to provide better Governance by active involvement of public.

**Organization:** Govt. of Goa  
**Category:** Software  
**Domain Bucket:** Software - Mobile App Development  
**Proposed Solution:**
The solution is split into two mobile applications:

1. **Safar** – This is a mobile application for the public users to detect potholes using two methods: Travel Mode (Auto detects potholes using inbuilt accelerometer and position sensors in a smartphone) when the user is travelling and Capture Image Mode (User can capture an image of a pothole and upload the same. Deep Learning techniques were used to authenticate the image). The user can view all the detected potholes on a real time map. The app also includes a feature to alert the user if a pothole is within 50m of range.

2. **SafarGov** – This is a mobile application for the Government officials. The users of this app include Elected Representatives, Public Works Department and individual Contractors. They can view the generated report and update the status of the reported potholes. All users can view reported potholes on a real time map and navigate to the specified location through our app. This report can also be viewed on a website.

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Technology stack:

1. Mobile application (Android and iOS compatible) – Flutter
2. Object Detection - YoloV3 (Deep Learning technique)
3. Flask – REST API
4. Authentication, Storage and Database -Firebase
5. Website Development – HTML, CSS and Javascript

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