**SIH 2023**

**PS NO:** SIH 1383 **Host organization:** Govt. of Himachal Pradesh **Team:** SqUAdRAMa

**Problem statement:** Optimizing Doctor Availability and Appointment Allocation in Hospitals through Digital Technology and Al Integration.

**Abstract (in 1000 words):**

For making this abstract clear and concise I’ll be addressing four questions regarding this problem statement: Why, What, How, Where/Who ?

**Why this problem statement?** Firstly, our interest of domain and our thinking falls in this particular problem statement. Our team will hopefully will come up with the solution best fit for the problem. Secondly, According to ‘aboutdigitalhealth.com’ article titled ‘Wait time waste time’ dated Jan20, each year globally billions of hour is wasted in wait due to improper waiting. But this problem statement solves the problem by optimizing doctors availability & appointment allocation. According to another article of NIH talks about wastage of nurse time and doctor time. This can be tackle by making doctor know about appointment on hand and it’s cancelling in some cases.

**What will be our solution?** We are planning for a web approach for implementing solution to this problem statement. We will be using an AI based time allocation function for time allocation & management of appointment. Not just that our solution will also solve the problem of doctor availability in any circumstances possibly. The web site will be user friendly which will help patient to get appointment of particular doctor at particular hospital. The availability of appointment time selected by user will be checked in the DB, based on that appointment will be given. It will check for doctor free time and if busy it will calculate the time using a variable named plusminustime short as pmt. The doctor location, identity, and availability will be checked using RFID, Face Detector (FD), & proximity. RFID can be placed on the cloth of the doctor and on doors reader will read the identity. For avoiding any propagation delay we will just store only ID which will be treated as foreign key which will extract doctors info. On the other hand proximity will check for loc like OT, Cabin, etc. FD will be capable of understanding doctors face and giving information. Due to some drawbacks of all sensors all three at same time will be used. This will not just solve the only given problem but also help in marking attendance of the staffs using the sensors.

**How our solution will tackle this problem?** As discussed above about the solution in short. The solution will solve the problem by noting doctors availability using sensors. Also it will help patient to take there respective appointment. Noting that appointment can have rare circumstances like immediate appointment or cancellation will be handled using real time notification. For immediate need of appointment a section of ER can be created. It will also avoid prop delay while noting doctors info. Few points are given below:

* It will prevent waiting time.
* It will help doctor in managing appointments.
* It will help patient to get to know about doctors availability before hand.
* It will avoid any chaos on clinic.
* Mark In/Out of doctor based on sensors on Entry/ Exit doors.

**Where our solution is needed/ Who is our audience?**

* At places such as hospitals, clinics, ect.
* For patients in need of appointment.
* Where management of appointment is crucial.
* Doctors knowing about there patients appointment before hand.

**Lastly, there can be some pitfalls in the problem like internet problem, Appointment applied at same time, sensor flaws, etc. But all this problem will be negligible, rare, and can be solved completely or reduced with respect to time.**

**Conclusion:** Our solution will be capable of managing appointments, doctors availability and avoiding any wastage on time for appointment. Also it will keep users safe and secure and there data will be protected. Real time notification will help in reminders, informing and various message sending task.