SMART BLOOD BANK

"If you are a BLOOD DONOR you are a HERO to someone, somewhere, who received your gift of life."

Team Name : *Quadrilateral*

Theme : *Health / Fitness*

BLOOD AND BLOOD BANKS

Blood is a very unique and precious resource because it can only be obtained from blood donors. Donors participate to save many human beings each year.

From one unit of blood, **red blood cells** can be extracted for use. The liquid part of the blood, the **plasma**, is given to patients who have clotting problems. The third component of blood is **platelets**, which clots the blood when there is bleeding.

Although the number of people who need blood is always increasing due to growing population and the availability of blood is not adequate as there is no central *Blood Bank* that can manage the blood donation and management in India.

Each hospital has its own Blood Bank and its own procedures. Each Blood Blank is responsible for the management and control of transfusions and processing; it is also responsible for collecting the units and for the donor services.

WHY SMART BLOOD BANK??

- At present India has 2,903 blood banks spread all across the country, of which 1,043 are public and 1,860 private, including those run by charitable trusts. *On the other hand, about 74 districts across 17 states do not have a single blood bank! (Source: The Quint).*

  "India is short of 2 million blood units every year."

- Such regions witness high mortality rates due to blood loss. Many local hospitals resort to unsafe methods like direct blood transfusion in desperate attempt to save lives.

- Around **112.5 million units of donated blood** are collected globally every year, however, many patients requiring transfusion do not have timely access to safe blood and blood products.

- *"As the existing application lack the concept of Blood Availability in Blood Banks as well as donor interested in donating the blood this application overcomes the drawbacks by introducing the concept of sharing various contacts and blood availability as well as Donor details available nearby for donation."*

- *"As per a 2012 report by WHO, only 9 million blood units are available annually whereas the demand is 12 million units."*

- Disparities in access of donors in different areas have led to *wastage of blood stock* in some parts of the country, while at the same time creating a *shortage of blood units* in other parts.
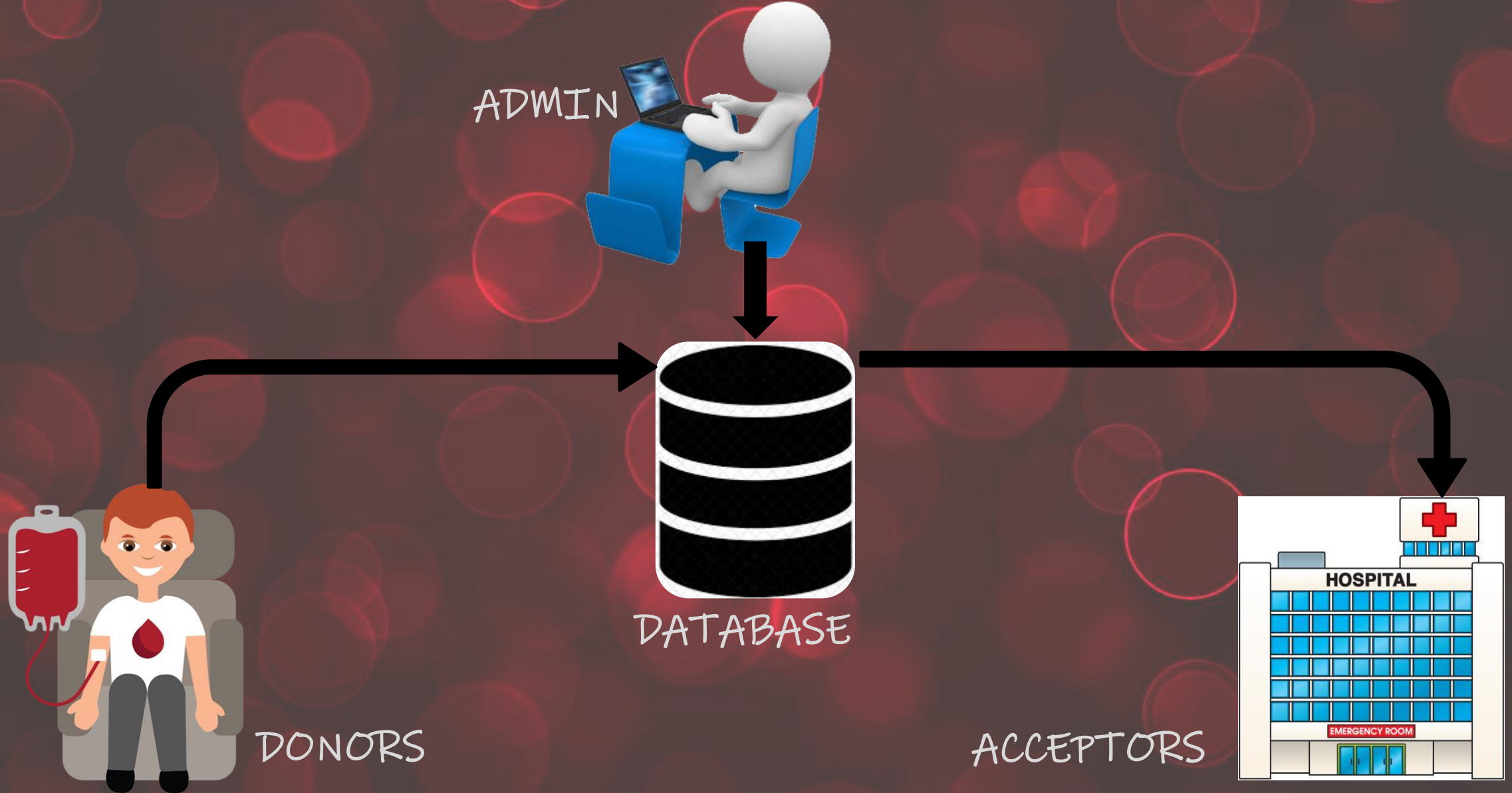
Smart Blood Bank System is a concept to combine the donation system with donors, Blood Providers and Blood Needy preferences and their points of view. Such an application system could be a solution to join donors, Blood Donors and Blood Acceptors at the same platform and to encourage volunteer donations and Smart Blood Supply.

- Also, as per the *Blood Laws in India, human blood is covered under the definition of drug under the Drugs and Cosmetics Act, 1940.* Blood bank activities are regulated under this act and they have to comply with the terms presented in the license. It specifies about *accommodation, manpower, equipment, supplies and reagents, good manufacturing practices, and process control* to be followed in Indian blood transfusion services. Practices like *direct blood transfusion are unsafe and illegal as per the Indian Constitutional Provisions.*

OUR SOLUTION (IDEA)

"To connect the Licensed Blood Banks to the remote areas of India virtually, and administer real time blood donations and requirements through a Web-App called **Smart Blood Bank**."

PLAN OF ACTION FOR WEB-APP

ADMIN

DATABASE

DONORS

ACCEPTORS

WORKING AND IMPLEMENTATION

- Our app will be powered by a *Licensed Blood Bank* that will act as the admin to the app whose role will be to :

  *Maintain Donors' list , Health status and Donation status.

  *Verify and authorize the registered hospitals.

  *Supervise real time blood donations.

- The registered **hospitals will create a request** for the required blood group, this will lead the web app to **generate a query in the Donors Database** and provide results on the basis of the **Blood Group, Donation history (Donor will be eligible after 3 months of last donation) and Proximity to the hospital.**

- **The prospective donors will be sent the notification** after shortlisting.

- The **blood reports, health status and donation status** will be verified and updated by the **Blood Bank Admin.**

- As a bonus, the **donors' health report parameters will be used by the Web App to predict the future health status of the donor using <u>Data Sciences through Predictive Analysis</u> and provide health status and tips on the Donors' Dashboard accordingly.**

REAL LIFE APPLICABILITY

- Practical and has the potential to bring about a change.

- Easy to operate.

- Ensuring safe and legal practices for blood donation in remote areas.

- Reducing deaths due to blood loss.

- Reducing the Blood units deficit across the country.

- Promoting more Donations and Donor registrations through incentives like free blood check ups and health predictions.

- Promoting healthy lifestyle and safe practices.

BE
A HERO
GIVE
BLOOD

DONATE BLOOD

Did you know??

Type O-negative blood is needed in emergencies before the patient's blood type is known and with newborns who need blood.

0.4 percent of people have AB-blood type. AB-type blood donors are universal donors of plasma, which is often used in emergencies, for newborns and for patients requiring massive transfusions.

Only 7 percent of people in India have O-ve blood type. O-ve blood type donors are universal donors as their blood can be given to people of all blood types.

Thirty-five percent of people have Type O (positive or negative) blood.