HEMOMETER (check Hb)

INTRODUCTION : Biosensor is designed to detect anemia. Anemia is most common disorder of blood. It affects only about 3.5 million american. It occurs when the level of healthy red blood cells (RBCs) in the body becomes too low. This can lead to health problems because RBCs contain **hemoglobin**, which carries oxygen to the body's tissues.

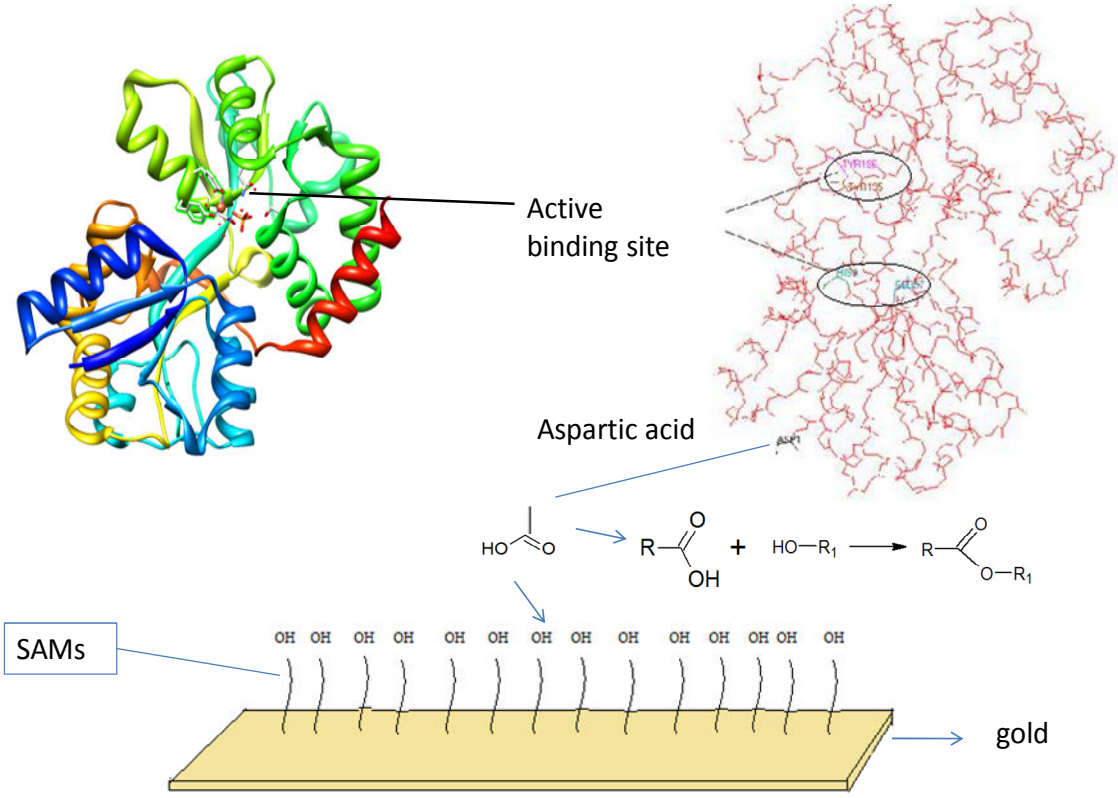
ANALYTE : Hb contains IRON which has oxygen carrying capacity. Anemia occur due to decrease iron so oxygen carrying capacity also reduces. Here we used hemometer to detect ferric ion.

WORKING PRINCIPLE : Here **Iron binding protein FbpA** from gram –ve bacteria H. influenza can be used. Because of its binding nature the weight of final product will change. So here making use of total internal reflectance of optical fiber, we can measure shift of resonance corresponding to change in surface phenomena. Resonance shift depends on concentration.

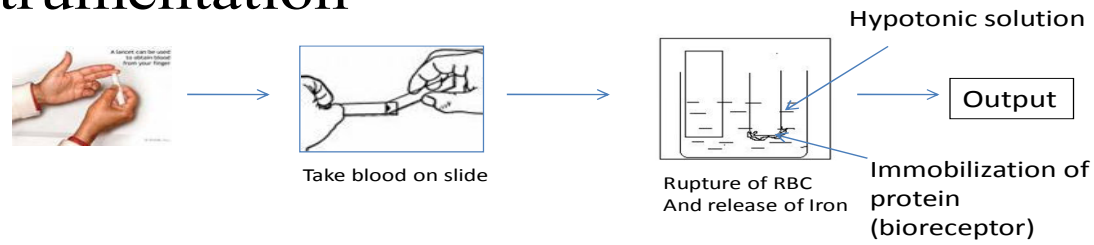
TRANSDUCER : Chosen transducer is SPR. There are following reasons.

- Main goal is to detect binding of iron to FbpA protein.
- Simple device and no labeling requirements.
- Automated process

- Immobilization:



Instrumentation



Graph :

Binding of specific analyte to the sensor result in the increase in refractive index of the medium at the surface and hence increase in angle at which resonance is observed.

Change depending upon the concentration of the iron