IMAGE BASED AUTHENTICATION USING ZERO KNOWLEDGE PROTOCOL

BATCH NO	18		
DOMAIN	WEB SECURITY , ANDROID		
SUPERVISOR NAME	Assistant Professor . J BHUVANA		
TEAM MEMBERS	DEEPAK RAJAN S	CSE - A	160501039
	DHAMODHARAN V B	CSE - A	160501038
	HARIHARAN S	CSE - A	160501054
DATE OF REVIEW	18th DEC 2019		

ABSTRACT

One of the important task to be performed to ensure the security in internet is **authentication**. Authentication is basically a process of verifying the secret that is known between two actors(say a system and a human user).This authentication is done traditionally by a piece of text as password for human user to get authenticated into a particular system ,which is exploited by the attackers to intercept the connection and get the password. So an alternative for **text based password** was introduced and it is called the **image based password**. It uses a image as a password ,though it minimize the probability of security system getting compromised ,it doesn't defend shoulder surfing problem ,in which attacker gets the password by peeping into the user's monitor and moreover humans feel easy to remember the image password rather than text password so once the attacker see the image password or sequence ,he/she can easily redo it. so a technique which defends both shoulder attack and attacks in the intermediate connection is required ,this lead a technique called **ZERO KNOWLEDGE PROTOCOLS.**

BASIC CONCEPTS

• **Zero Knowledge Proof (ZKF)** : An technique in which a proofer uses to prove some statement to the reviewer without revealing the actual statement.

• **Cognitive skill :** Cognitive skills are the core skills your brain uses to think, read, learn, remember, reason, and pay attention. Working together, they take incoming information and move it into the bank of knowledge you use every day at school, at work, and in life. Brain training trains the cognitive skills the brain uses to think and learn.

• **Visual processing :** This visual processing of the cognitive skill set enables the humans to perform tasks quickly and accurately.

• **Story :** It is the sequence of images that a user uses to represent his desired story as a password.

PROBLEM STATEMENT

This is problem statement is about defending the password from both shoulder surfing and other attacks.

Importance of this problem statement :

- The importance of this project can be realized if we trace back to how authentication happened in internet few year back.

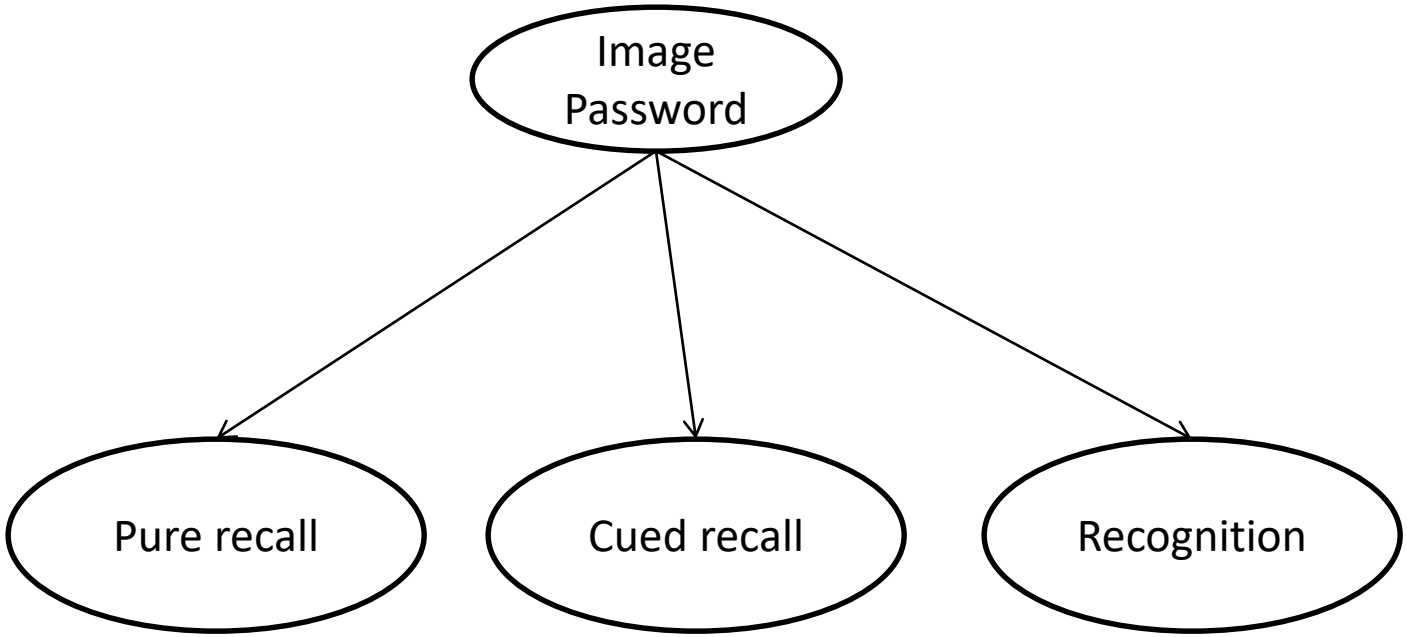
- It was text based password that were used to authenticate oneself into a system ,which later became vulnerable and many encryption algorithms were framed to protect against the data theft.

- Then came the picture based password which still suffered from the shoulder surfing problem.

- So the main reason for the above given problems are revealing the password to any authority for verification ,then came the zero knowledge algorithm which claimed that any statement can be proved to the reviewer without revealing any sort important data.

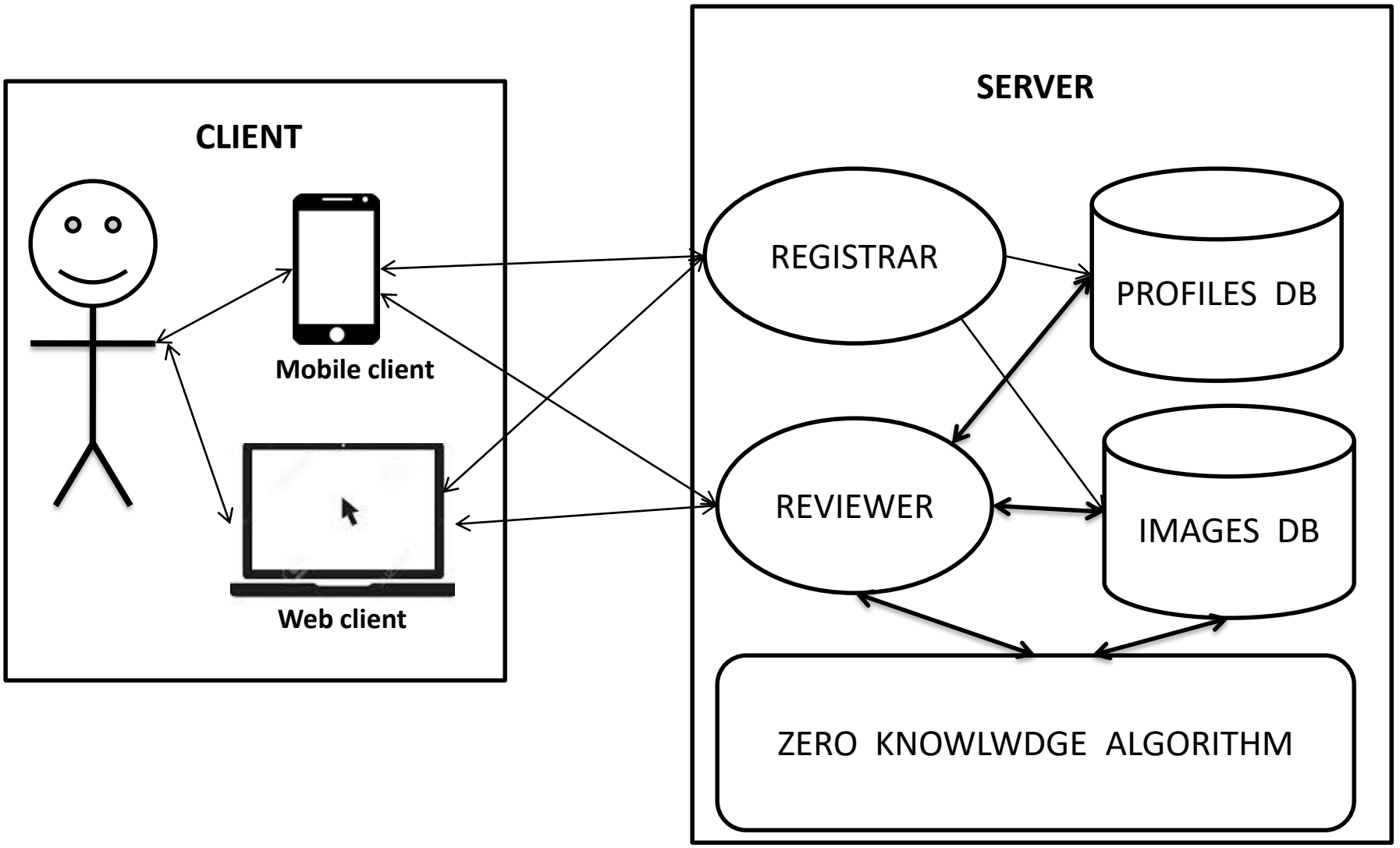
EXISTING APPROACH TO SOLVE THE PROBLEM

The type of picture password are classified into three they are :



- The existing solutions falls under the **Recognition** type image password and the original password is also in the text format so the attack can compromise the system even if he knows the partial password.
- This project is focused on making the origin password a **story type**.

ARCHITECTURE



HARDWARE AND SOFTWARE REQUIREMENT

- Hardware Requirements :
    1. RAM:6GB
    2. PROCESSOR : Intel Pentium dual core 3.00 GHz
    3. GRAPHIC CARD : NOT REQUIRED

- Software Requirements :
    1. Java V 1.8
    2. Tomcat Server
    3. MySQL server
    4. MySQL Jconnector API
    5. org.JSON API
    6. Servlet API
    7. Android studio.
    8. REST API

IMPLEMENTATION MODULES

1. Login module.
2. Registrar module.
3. ZKF module.
4. Mobile client module.
5. Web client module.
6. Reviewer module.

REFERENCES

• IMAGE BASED AUTHENTICATION USING ZERO-KNOWLEDGE PROTOCOL By Zarina Mohamad, Lim Yan Thong, Aznida Hayati Zakaria, Wan Suryani Wan Awang.

• SHOULDER SURFING RESISTANT GRAPHICAL AUTHENTICATION SCHEME FOR WEB BASED APPLICATION by Prof. Awodele Oludele Ph.D, Kalesanwo Olamide, Kuyoro Afolashade PhD., Fowora Damilola, Ariweriokuma Excellence.

• SHOULDER SURFING RESISTANT GRAPHICAL PASSWORD SYSTEM By Amish shah,Part ved ,Avani Deora ,Arjum Jaishwal , Mitchell D'silva.