**Problem statement**

Due to the rising security flaws and customer not following the guideline provided to them, there has been an increase in number of scam in atm booths or any access point area. The sense of security and trust from the customer has decreased to use these access point fearing their personal info/account might be taken over by an unknown entity if they use that system.

So to overcome it we can equip these access points with an automated response and system lockdown should happen, for that we need to sense the parameter where these type of incidents can be prevented and make the overall system secure

**Problems**

suppose a scenario there is an atm booth

1- People don’t shut the entry door.

2-More than 2 people access the machine.

3-People with helmet or faced covered access the machine.

4-People fiddling with the machine.

5-Install a 3rd party device into the machine to steal other people credentials.

6-In case of emergency no authorities are informed.

By summarising the above points, we can note there is lack of sense and security around the system. There is no automated response to deal with these basic problems.

**solutions**

1- **People don’t shut the entry door. -**we can place a sensor in the door. The atm/access point will be only accessible when the sensor says the door is shut, till then no matter what the user does the atm/access point will not respond until the door sensor says the door is closed and will prompt the user to shut the door

2-**More than 2 people access the machine. -**We can utilise the security cam to sense the number of people present in the area if it detects more than 2 people it will inform the user that it is violating the security protocols, until then the user cannot access the machine by informing them that max 2 people can access them

3-**People with helmet or faced covered access the machine. -**Use of the same security cam we can use to check if there is a visible face accessing the atm until then shall not allow the user to access the system till they remove the mast/obstruction material around their face

4-**People fiddling with the machine. -**There should be a sensor like touch sensor or any type of sensor that can detect with the system is being tampered in that case it should secretly inform the local authorities about the intrusion so later on the authorities can investigate, plus a complete lockdown of the system should happen immediately

5-**Install a 3rd party device into the machine to steal other people credentials. -**There should be a sensor that can detect if any 3rd party device /spy cam is installed and disable the system and inform the authority till the installed devices are removed

6-**In case of emergency no authorities are informed. -**in case there is a break in into the atm while an user is accessing the system there should be an sos triggered immediately to the nearby law enforcers to prevent any further damages to the user

**requirement for hardware**

1-A microcontroller to control the sensors and program them

2- **People don’t shut the entry door.** - door sensor

3-**People with helmet or faced covered access the machine or More than 2 people accessing the machine, to detect any intrusion for sending sos-** a camera (high resolution and wide range)

4**-People fiddling with the machine**. -proximity sensors and vibrational sensor

5**-Install a 3rd party device into the machine to steal other people credentials.** -proximity sensors, vibrational sensor, (a sensor to detect if there is an add on into the machine, and if a component is disassembled)

**Explanation of the diagram**

It consists of a door sensor, proximity sensor vibration sensor which will communicate serially with microcontroller. The door sensor will send true or false value according to which the microcontroller will decide to activate the atm or not. The proximity sensor will inform the micro controller about an object detection, upon which the micro controller will check from the feeds given from the camera if there are more than 2 people in the area and if they are obstructing their face, if it fulfils all the criteria it will enable/deactivate the atm. The vibration sensor shall detect any type of tampering with the system and alert the microcontroller to decide the necessary task to perform. The micro controller also has a task to check the security of the user in case there is an emergency it shall inform the local authorities