Project Proposal

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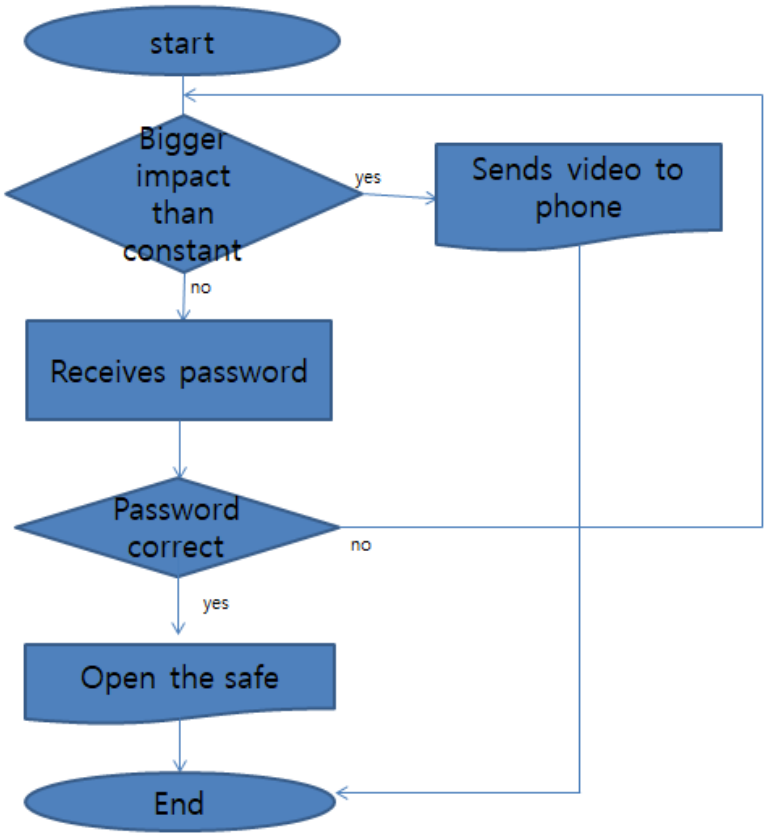
We will make a team to purpose this project with two students, Choi (Student ID : 128169) and Ko (Student ID : 16011132). In this project, we are going to make a safe with Raspberry Pi operating with C++ codes. Pseudo codes which will be implemented are like below. Flow chart of algorithm is same as diagram under the codes.

<Flow chart>



If the safe gets moderate impact from outside, sends video to owner of the safe to recognize who is trying to break the safe. If a safe owner wants to open the safe's door in a remote distance, the owner can sends password for usability when password is correctly inputted.

<C++ Codes>

```
#include <stdlib.h>
#include <stdio.h>
#include <pthread.h>
#include <wiringPi.h>
#include <unistd.h>
#include <time.h>
#include <iostream>
#include <softPwm.h>
#define SERVO  29
using namespace std;

void *ThreadVideo(void * pArg) {

        for(;;)
        {
            time_t curr;
            struct tm *d;
            char now[200],fn[200];
            char *rear = ".h264" ;
            char *path ="/usr/local/iot-c/";
            curr=time(NULL);
            d=localtime(&curr);
            printf("%2d %2d %2d ₩n", d->tm_hour, d->tm_min, d->tm_sec);
            sprintf(now,"%s%d%d%d%s",path,d->tm_hour,d->tm_min,d->tm_sec,rear);
            sprintf(fn,"raspivid -t 5000 -w 640 -h 480 -fps 25 -b 1200000 "
                        "-p 0,0,640,480 -o %s",now);
            system(fn);
```

```
            delay(100);
            pthread_exit(pArg);
        }
}

int main()
{
        char close, open;
        int ps=0, check;
        int step1 = 0, step2 = 1, step3 = 0;
        int a=0;
        pthread_t pt_video;
        int cnt=0;

        if(wiringPiSetup() == -1)
                return -1;

        pinMode(SERVO, OUTPUT) ;   // set 0 pin as OUTPUT.
        softPwmCreate(SERVO, 0, 200) ;
        while(1){
                pinMode(0, INPUT);

             check = digitalRead(0);

             if(check == 0){
                  pthread_create(&pt_video,NULL,ThreadVideo,NULL);
                        cout << "main run" << endl;

                     if (cnt==10) {
                          system("sudo killall raspivid");
                                cout << "video stopping tm= " << cnt << endl;
                          cnt=0;
                          break;
                        }
```

```
                cnt++;
                delay(1000);
        }
            cout << "password: ";
            cin >> ps;

            if(ps == 1){
                softPwmWrite(SERVO, 1) ;
              cout << " pos 1 180deg" << endl;
              delay(1000) ;
              step1 = 1;
              step2 = 0;
            }
    }
}
```