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Shenaz Buhari
November 2020

Abstract

This section provides a high-level description of my project and why this final document was created. This means that it can explore the human ability to control emotions. There are many types of emotions that affect our way of life and interaction with others. Sometimes it seems that we are overwhelmed by these feelings. Emotions are defined as happiness, sadness, hatred/disgusted, fear, surprise, and anger. Then expanded the list of basic emotions to include things like pride, shame, confusion, and excitement.

Any person or group of these dark feelings can cause harm because they are extremely intense emotions which, if left unchecked, can influence the decision of one or more people to act irresponsibly. Your thoughts and feelings can harm your health. Feelings that are experienced and expressed freely flow without judgment or association freely without affecting your health. Negative situations, feelings of helplessness, and frustration can create extreme stress, disrupting the hormonal balance in the body, depleting chemicals in the brain needed for pleasure, and damaging the immune system. High stress can really shorten your life.

Outbursts of anger can lead to physical exploitation or violence. A person who can’t control his temper can keep himself away from family and friends. Some people who turn to anger have low self-confidence and use their anger to handle others and as powerful. Therefore, we should control them.

This statement briefly described the emotion control devices using IoT. More details on the system architecture and components are provided in this document.

This document and the specifications listed here are compliant with all standards and device infrastructures. This section explained the basic design goals, aims,

and objectives. This means that we created this device because we need to create our own non-violent environment with minimal emotional impact. Therefore, I create a device and include a high-level description of the approach used to develop the device in this document. It may also contain a high-level description of the device's hardware, software, and security elements.

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1. Introduction

There is a negligent issue that every human is facing which they do not focus much but it may lead to huge tragedies. That was critical human emotional ranges.

Human emotions are encouraged by the choices that we make. We will laugh, cry, avoid the scary people, we do the things until satisfied. Though these kinds of feelings will control how we need to react and behave. We all influenced by those emotions which we experiencing at certain moments.

Most of the scientists are considered emotions that are not only involved in the feelings and also will make body reactions, facial expressions, expressive movements as well as heart races. According to the structure of the emotion, many people have different types of words to describe how these emotions are related to each person.

Throughout the researches I found There are four main emotions, everyone is experiencing. There are Happiness, Sadness, Fear and Anger/Disgust.

Next, I move to a major emotional type of anger. Anger is a well-known emotional level that everyone knows. people feel anger at a different time and it is a part of the human experience.

Anger is such a strong emotion, which not only disturbs others emotionally but also harmfully affects the person getting angry. Inexorable anger and a similar temperament may also lead to hypertension and also cause blood pressure to rise.

This emotion may have psychological and physical consequences. Constant anger may make it difficult for people to make rational decisions and may affect your physical health. Anger is also associated with health risks. The effect of anger on

our body and mind. In fact, when we are angry, a series of complex physiological events occur. It is associated with dissatisfaction, irritability, headaches, insomnia to digestive problems, skin problems, heart attacks, and even strokes. In addition, if you feel anxious, anger may be exacerbated by enhancing the symptoms of generalized anxiety disorder. In order not to let your anger prevail, please stand back for a while, understand the cause of your anger, and discuss your thoughts with others. Find solutions to problems and get rid of unhealthy thinking patterns.

In addition to the risk of heart disease, people with anxiety or depression can also cause liver disease. A study demonstrated that mental disorders can increase the risk of cardiovascular disease. cardiovascular disease can be the cause of liver disease, called non-alcoholic fatty liver disease, which can develop into cirrhosis and liver failure. Therefore, people suffering from anxiety or depression may greatly increase the risk of dying from liver disease. This is how the anger impact to your health.

Next is Sadness that is a human emotion that everyone feels at some point in their lives. Feeling sad is a normal response to a situation that causes depression or pain. There are variable degrees of sadness. However, just like other emotions, sadness is temporary and fades with time. But the extended version of the sadness is depression. Depression is a long-term mental illness. It harms society, professions, and other important career fields. If left untreated, symptoms of depression can continue for a long time.

If you are sad you can feel such thoughts. That is an endless feeling of sadness, exhaustion, changes in sleeping or eating patterns, lack of interest, and enthusiasm for things that were previously used to provide pleasure, deep feelings of inner war, inattention, and physical symptoms (such as Headache or body aches). It has no identifiable cause, feelings of worthlessness, persistent thoughts about death, or suicidal thoughts or actions. These are the risk factors

of sadness which I mentioned above. This is how the sadness influence to your health.

Next, I concentrate on Fear. When we feel Fear from the risk of harm, whether physical, emotional, or psychological, actual, or unreal. While fear has traditionally been considered as a negative emotion, in reality, it plays an important role in keeping us safe because it activates us to deal with potential danger. The fear response begins in the brain and extends to the body to make changes for defense or flight response. The fear begins in an area of the brain called the amygdala. It works every time you look at a person's face emotionally. This reaction is most definitely with anger and fear. It causes the release of stress hormones and the sympathetic nervous system. This means it may cause Generalized anxiety disorder, Panic disorder, Post-traumatic stress disorder (PTSD), Specific phobia, and Social anxiety disorder. However, This is how the fear effects to your health.

Above I proved several emotional states may lead to unhealthy conditions. These are the major focus in my research. Therefore, as a solution, I may recommend an Emotion controller device to avoid such risky states. This is the innovative thing in my project which means try to control the emotion among the device.

Mastering our emotions will helps to be more in control and deal with the different situations we look. Everyone should need to learn to deal with feelings more effectively. In addition, you will discover improvements in relationships such as fewer attacks and well communication. It reduces stress and less physiological symptoms related with emotions. Using positive emotions and negative emotions in a positive way gives you more energy to focus on the things that are important to you and improves your accomplishment and purpose. And also, it will help to enhance society's well-being. I hope my invention will help to make those things and Moreover this the main scope and aim of my project. This is an expanded version of my IoT project.

2. Literature Review

When I started the project, I don’t have any ideas about the project. Then I researched a lot.

Most humans agree that emotions can be triggered by an event, and when a child hears an ice cream truck, he sees the child feeling emotional. However, recent research shows that emotions can be unconsciously controlled and manipulated. Researchers have been able to analyse people's thoughts and feelings to control whether it evokes certain emotions without knowing the cause. According to theoretical studies, natural selection allows people to automatically identify specific emotional information.

Psychologists found that after exposure to rapid emotional stimuli (120 ms), feelings are generally associated with negative emotions.’ After the super-quick (40ms) speed exposure, only a generally negative mood was induced without a specific emotion involved. These empirical findings are the first to demonstrate that specific emotions can be evoked without awareness of the cause and that a person’s global mood can develop into a specific emotion.’ (Ruys and Stapel., 2020)

One of a study mentioned that psychologists did not investigate how people ultimately came to know their emotions, but scientist’s stance an additional theory when people are full of emotions*, they become aware of their emotions by recognizing their body's actions and reactions. Similarly, when emotions became very weak, people are unaware of their weak social interactions and reactions.* (Ruys and Stapel., 2020)

Above learnings are said, Various kind of emotions are hostile thought. It is a negative emotion that is regularly associated with arousal and inappropriate behaviour. It is often rude and disrespectful. Those are Respond to the actions of other unwanted people who are considered to be threatened or ignored. For instance, Anger contains certain thoughts. “My chief criticizes me near the contemporaries. Now I'm irritated. Anger motivates revenge. According to the learnings, about 25% of anger events contain thoughts of revenge. For instance, spreading Rumours about the person who was the reason to get angry. However, anger can affect people such as our loved ones, Children, Spouses, and friends.

Angry thoughts can cause muscle cramps, nausea, and vomiting. ‘In addition, the verbal and physical expressions of anger may serve as a warning to others about our displeasure. Verbal expressions include yelling, arguing, cursing, and sarcasm’ (Kassinove, 2020). And also, it can express by physically such as, shout out the words; swear to debates, throws books on the floor; breaking a pencil or hitting a wall. Sometimes anger manifests not from the outside but from the inside.

Which means, Anger refers to intentional behaviour aimed at hurting others. Often describes a wish to dominate and control The Aggression can strike, hit, strike or even injure others, and it can occur through domestic violence, child or adult abuse, harassment or gangs, and crime.

Sadness is a feeling that people experience at some point in their lives. Sadness is a natural response to painful emotional distress. There are different levels. But like any other emotion, sadness is temporary and will pass over time. In this way, Sadness is different from depression.

Depression is a chronic illness.it will spoil in social work and other important activities. Without treatment, depression can last a long time.

According to the researches I might found some of the causes of Sadness. Such as, *'Irritability, fatigue, changes in sleeping or eating patterns, difficulty concentrating, loss of interest and enthusiasm for things which used to provide pleasure, feelings of deep, unwarranted guilt, physical symptoms, such as headaches or body aches that do not have a specific, cause, feelings of insignificance, constant thoughts about death, suicidal thoughts or actions and etc.'* (Legg, 2020).

Depression can affect men and women of all ages. Depression affects all kinds of groups and all socio-economic backgrounds. Depression may have many risk factors. But taking one or more risks doesn't mean you're depressed. *'Risk factors include such as, early childhood or teenage trauma, inability to cope with a devastating life event, such as the death of a child or spouse, or any situation that causes extreme levels of pain, low self-esteem, family history of mental illness, including bipolar disorder or depression, history of substance abuse, including drugs and alcohol, lack of family or community acceptance for identifying as lesbian, gay, bisexual, or transgender (LGBT), trouble adjusting to a medical condition, such as cancer, stroke, chronic pain, or heart disease, trouble adjusting to body changes due to catastrophic injury, such as loss of limbs, or paralysis, history of prior mental health disorders, including anorexia, bulimia, post-traumatic stress disorder (PTSD), or anxiety disorder, lack of a support system, such as friends, family, or co-workers'* (Legg, 2020).

After the studies, and compare to those I came to the conclusion. many people are affected by various kinds of emotions. Finally, I justified there are two groups of people I might found. One of them is not considering emotion levels as a concentrated problem, and another set of people are not aware of the diseases and causes which are related to the emotions. Some of the organizations are invented devices to track emotions. Such as,

"*Mary Cheservinsky, scientist and psychologist at Microsoft Research, is an influential computer scientist who develops technology that measures a person's mental and stress levels. Cheservinsky and her classmates developed a wrist sensor that sends signals of parental stress to a network, which response with text messages that suggest helpful behaviours.*" (Post, 2020)

"*Amazon is planning to develop a wearable device that can track biometric data and alert us when we are under stress. But the idea that a device can know when we are happy or sad through our voice is something that companies have yet to explore.*" (Sawh, 2020)

'*Dr. Amy Serin, a neuropsychologist in Peoria, Arizona, has a tactile bilateral alternating stimulation system, a touchpoint, and a pair of wireless devices to wear on the wrist or pocket when the patient feels worried. Developed. "It can significantly change the brain's response to stress," Serine said. The base model costs $ 160. "Neither the concept nor the technology is new," but Serine, who has a clinical practice in three centres other than Phoenix, adds wireless wearable components and enhanced stimulation and has done or sponsored research to support her contention that Touchpoints "takes away your stress."* '(O'Hara, 2020)

However, I might find some organizations are designed some devices to track emotions but none of them are invented to control emotions. Therefore, this is the first idea to control the range of emotions. This invention is new to the world.

3. Methodology

In this section, I described the scope of the research. I explained the process that I followed when choosing this research method, and I explained the limitations and drawbacks of the project.

I have used many literature sources to study the effects of emotions, such as anger and fear, sad and also how to control and avoid them, additionally the mechanisms that help to reduce the range of these emotions. In this documentation, I summarized all the information I have learned and arranged it together in an understandable way.

Help the people to control their emotion levels and Increase people's mental health to Enhance the society's wellbeing is the aim of this project. And also Learn more about human emotions, Learn how to decrease people's negative emotions, Helps to avoid people's anxiety and depression, Complete the project on time and do the tasks according to the time plan are the objectives of the project.
I implemented the artifact using experimental research methods. It will help to generate new solutions to problems. Here I explained the range of emotions that have discovered, how could I collect the data, how could be applied, how they work, and how they are analysed and etc.

I have done the implementation and testing parts using online simulations which means, automation simulation, communication simulation and data visualized using blynk platform. Since our country situation I am unable to do the real artifact.

When system data is detected by the sensor, the sensor communicates through the microcontroller and sends the data via Wi-Fi to the Blynk visualization app. This is the method of analysis. No sensitive data is used in this project, only collected data which is gathered for testing purposes.

Project artifacts provide accurate solutions to these problems and explain what the system should do during the phase of the artifacts. Totally we have taken 400hrs to take over the entire project.

Below, I evaluated my solution to justify that the project I have suggested helps people live peacefully and relieve future mood problems.

Evaluation of the Solution

Considering the data from the Department of Census and statistics of Srilanka, many people suffer from mood disorders. In short, most people have tried hard to control their moods.

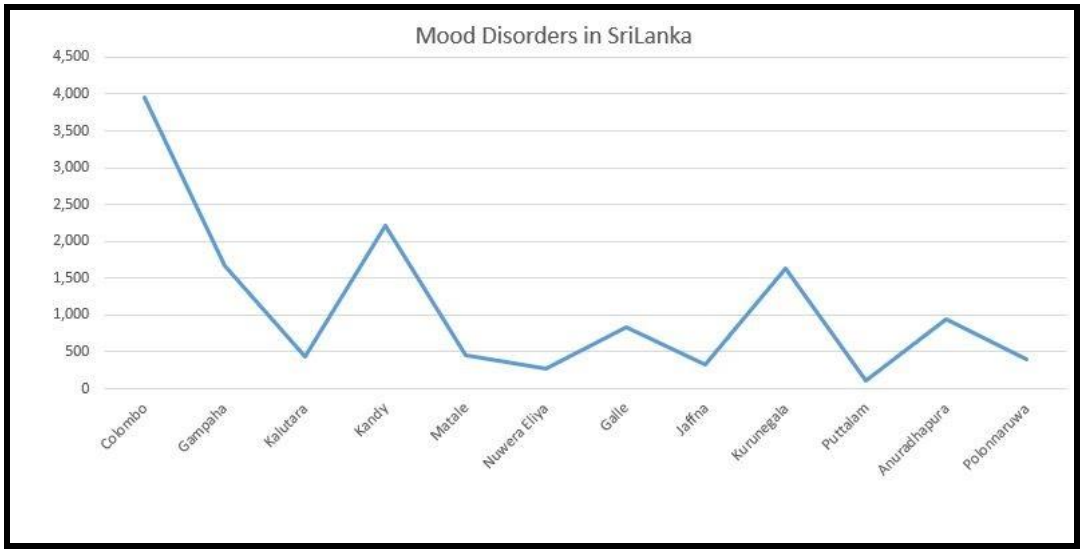


Figure 1 mood disorders, November 2020

(LankaSIS, 2020)

This is a mental health problem; it mainly affects a person's emotional state. It is a condition that a person experiences long-term dangerous happiness, dangerous sadness, or both.

depression is a common mood disorder. This debilitating disease leads to mental distress and physical illness. This usually prevents normal daily operations. Many Depression People may involve in one major depression chapter in their lifetime, but most people experience multiple chapters. (Mood Disorder Symptoms, Causes, and Effect - PsychGuides.com, 2020)

Changing the mood is a common thing that will depend on the situation. However, for the analysis of mood disorder symptoms, it may represent for a few

weeks. Mood disorders could occur changes in your behavior and affect your ability to survive with daily activities.

Depending on the type of mental disorder, there could be many potential factors. A variety of genetic, biological, environmental, and other factors are linked to mood disorders. Risk factors may include such as past diagnoses of mood disorders, trauma, stress, or major life changes due to depression, bodily illness, or the use of certain medications. Depression is associated with major diseases such as cancer, diabetes, heart disease, brain structure, and function of bipolar disorder, etc. (Mood Disorders; Causes, Symptoms, Management & Treatment, 2020)

In addition, causes of mood disorder are feeling sad most or almost every day, lack of energy or drowsiness, feeling of worthlessness or hopelessness, loss of appetite or overeating, weight gain or weight loss, which is harmful to the previous one. Pleasure activities lose interest, sleep for a long time or lack sleep, difficulty concentrating or concentrating, often suggest death or suicide, and so on.

The below screenshot will represent the neurotic, stress-related disorders. It may cause anger, anxiety, over-thinking, sadness, and also fear.

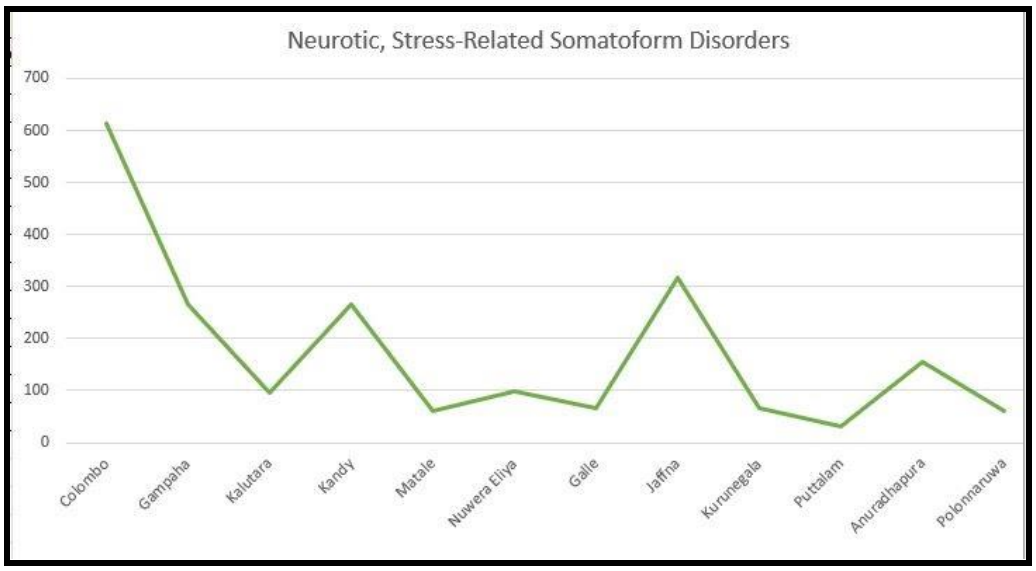


Figure 2 Neurotic disorders, November 2020

(LankaSIS, 2020)

Stress-related disorders are caused by an abnormal response to critical or long-term anxiety and may include obsessive-compulsive disorder and post-traumatic stress disorder. Mental health is often not a priority in public health research, and its impact on human and social well-being is frequently undervalued. As far as human suffering is concerned, mental health problems are the most overwhelming and most difficult to quantify and treat. (Mental Health and Stress-Related Disorders - Climate and Human Health, 2020)

Stress keeps your body in a constant state and preparing for physical activity. If you don't have time to restore balance to your body, your body will work very hard, weakening your immune system and making you more vulnerable to disease. Many important physical processes are interrupted and health risks increase. Here we have mentioned several causes of stress such as memory loss, depression, skin diseases such as eczema, sleep disorders, obesity, heart disease, digestive disorders, and autoimmune diseases, and so on. (Legg, 2020)

And also, their mental health was weak. That's what they have Mental retardation related disorders. That will represent in the below screenshot.

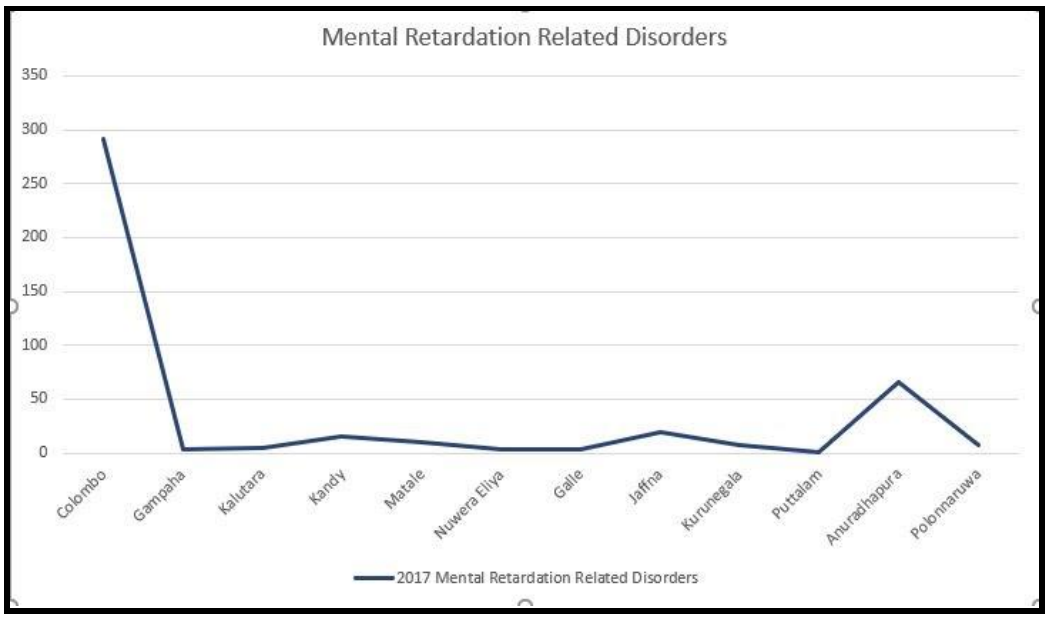


Figure 3 mental retardational disorders, November 2020

(LankaSIS, 2020)

Intellectual disability (ID), formerly known as mental retardation, is characterized by below-average intellectual or mental capacities and a lack of skills necessary for daily living. People with intellectual disabilities can learn new skills, but they are slower to learn. There are different degrees of intellectual disability, from mild to severe. (Intellectual Disability (Mental Retardation), 2020)

Most people don't care about their mental health. untreated mental illness contains substance use disorders, overdose, suicide, financial costs of health care, and loss of productivity. For instance, these costs are personally experienced as disruption of relationships, poor performance at school and at work, suicidal ideation, drug addiction, and poor physical health. Comprehensive

and continuous treatment is the answer, but the first step is to properly diagnose an existing mental illness.

Now itself people have to be aware of these kinds of issues and they have to take proper treatments.

According to my research, in order to collect information from respondents, I collected some information from a questionnaire consisting of a series of questions. This means that surveys are one of the most accessible ways to collect quantitative data.

Considering my first question, most people get angry every day.

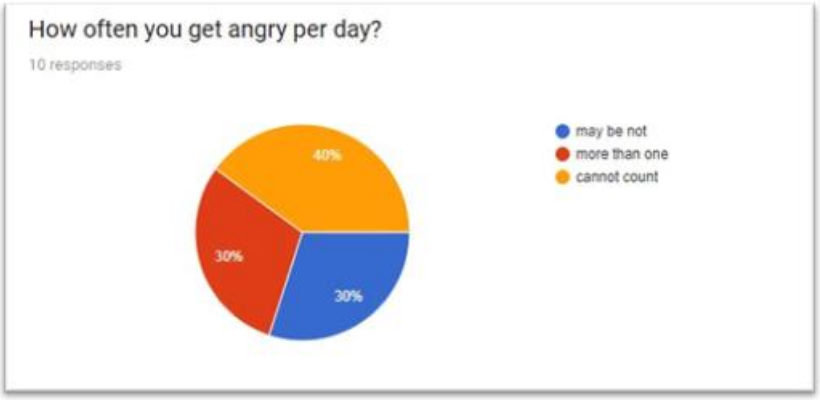


Figure 4 Question one, October 2020

There are many reasons for anger, such as impatience, not appreciating your opinion or efforts, and injustice. Another reason for anger includes anxiety or traumatic events, as well as anxiety about personal trauma.

It makes you extremely upset based on what you and others around you expect from you. Your resume burns the anger response. for instance, If you are not taught how to properly vent your anger, your resentment may go away.

The result of my second question is that most people leave when they are angry, and some people stand up and respond. This is not a healthy habit at all. This will increase your anger range higher. As a result, you may lose control of your mind. Then they may be sad and disturbed.

Figure 5 Question two, October 2020

move to the next question, most of the persons get angry and when they get angry, they leave and 40% of people scream in this situation. This emotion is very unsafe. Chronic anger increases the risk of heart disease and stroke. It can also weaken your immune system. In fact, Anger can make some people think more sensibly.

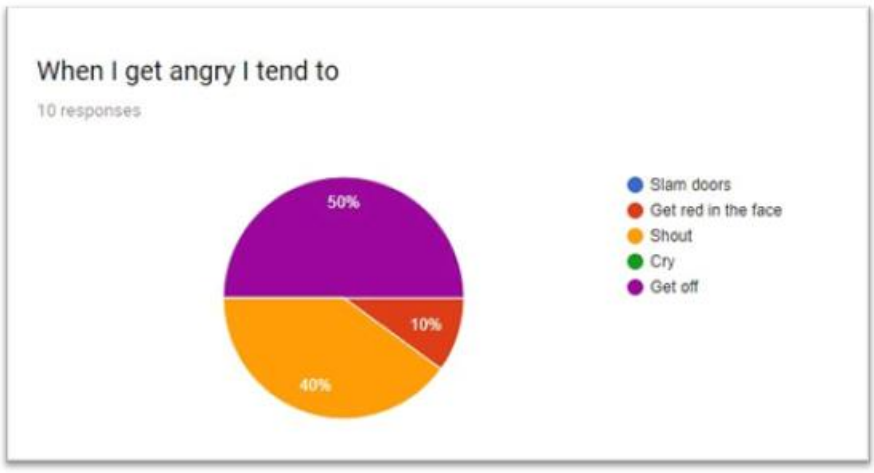


Figure 6 Question three, October 2020

next question is that when people get angry, they destroy something. It was called a directional attack. When we get angry at someone, we have to attack them in any way. However, there are many reasons, for instance, attacks are forcefully costly, and serious attacks can disrupt social connections also. that makes it more flexible to direct an attack on another object. Thus, when people are angry, they need to smash, destroy something, or slap another to calm their mind. That was also a state of risk.

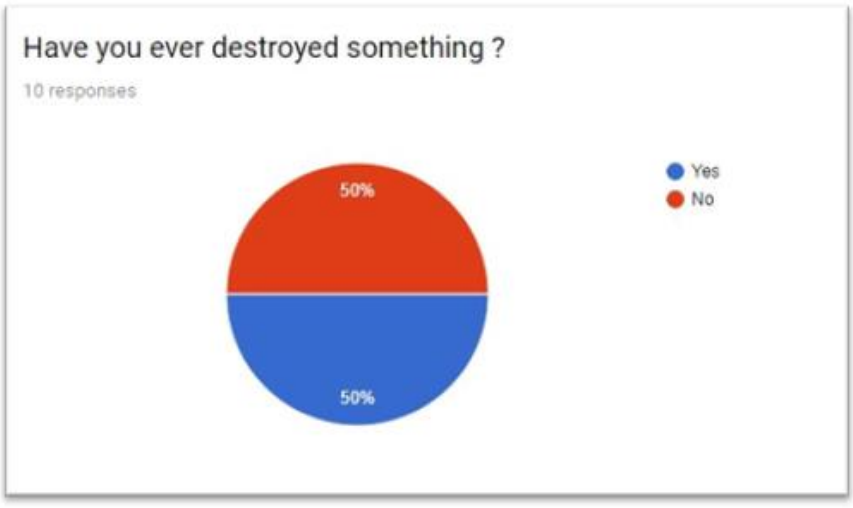


Figure 7 Question four, October 2020

My next question is that most people don't feel sorry for what they destroyed during the fight.

That is known as Outward, which involves expressing yourself in an understandable way. This can include shouting, insulting, throwing, breaking, verbal abuse, or physical abuse of others.

Anger also affects your relationships; it can hurt others and cause you to say or do things you regret.

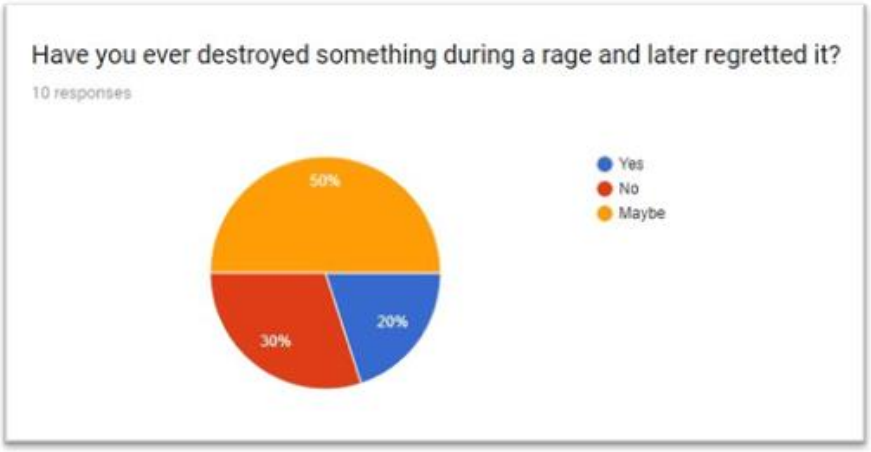


Figure 8 Question five, October 2020

My last question is, people agree with anger, it's not a healthy habit.
Everyone is experienced on this anger emotion. The force of anger can range from strong resentment to strong anger. Sometimes when reacting to certain situations, anger is normal.

But sometimes people get angry, especially when they are uncontrollably frustrated. In this case, anger is not a normal emotion, but that was an extreme problem.

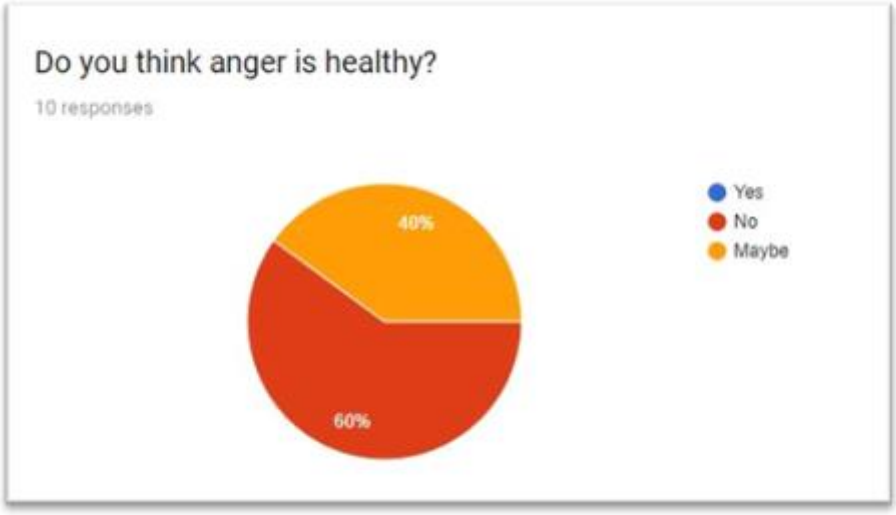


Figure 9 Question six, October 2020

Some people can't control their anger. Anger can lead to physical abuse or violence. A person who is unable to control their emotions may be isolated from family and friends. Some angry people use anger to deceive others with low self-confidence. It was an outburst of anger. that is known as anger explosions.

Some people choose to suppress anger, believing it to be unsuitable or bad emotions. But the anger leads to depression and anxiety. Some people will be angry at innocent parties, such as innocent children, pets, and so on. That is known as anger repression

The adrenal glands are filled with stress hormones such as adrenaline and cortisol. The brain transfers blood from the gut to the muscles to repair the body. Heart rate High blood pressure and respiration rate; Increased body temperature and sweating. The mind is sharp and Focus, Therefore, anger is not a healthy habit at all. (Anger - how it affects people, 2020)

In this project, I directly focused on mentally suffered people and also who are unable to control their emotional states. Therefore, I recommended the device as an emotional controller device to control their unwanted state of emotions.

reducing stress is the main benefit of this project. emotions cannot control your thoughts; thus, you can use this device to avoid uncertain moments. This is largely due to the consciousness that reduces the chance of discovering ourselves under stress and anger.

This may help to take responsibility for your emotions and the consequences of your actions. With the help of this process that the person can honestly evaluate the situation and take responsibility if necessary, without blaming others. Stress often causes serious health problems. In general, better anger management leads to a better lifestyle and reduces stress. This process will support to control your anger and reduce stress, your blood pressure, heart rate, and blood pressure will normalize. It also reduces headaches and heart disease. (What Are The Benefits Of Anger Management Counseling?, 2020)

Moreover, Negative emotions can be expressed in any way that causes sadness and disappointments. Because of these feelings do not love yourself and others. It undermines your self-confidence, self-esteem, and life satisfaction.

Negative emotions can lead to hatred, anxiety, and depression, Jealousy, and sadness. But in the right context, these feelings are completely normal. these emotions will reduce the enthusiasm of our lives and determine how long we allow them to be influenced. The longer it lasts, the more painful it becomes. Improper handling of negative emotions can also be dangerous. This is how I analyzed the collected data and I came to a conclusion that recommended device can help you to improve your personal lifestyle and relationships. as well as it helps to enhance inner peace and own satisfaction.

4.1 Professional, Legal and Ethical issues

- I collected data under the data protection concern.
- This system has no danger to any humans.
- I carry out the project carefully.
- This system is specially designed for enhancing the well-being of society
- I obey some guidelines to keep safe my information from threats.
- The main rule of the project is that I do not take any sensitive data to test the project.
- Do not put pressure on users.
- user's safety is essential.
- We followed several Procedures in the project. There are no risks and disadvantages to the users. These include physical or mental injuries.
- The benefits of research for society and individuals. Before the developer explains the technical term to the user. Therefore, users do not have to be afraid.
- The developer should be responsible for those physical and mental harms.
- Developers must request it before exposing it to users and sharing it with others. All developers should keep their data and not share it with anyone.
- The developer must be responsible for the privacy of the users.
- The user has the right to withdraw from the project at any time.
- Developers can't be forceful with their users.
- The user has the right to ask questions about results and researches. Developers need to be informed about the survey and provide answers to user questions. Developers must be informants to users of their rights.
- Developers must have high knowledge of research and experience about the system. Users do not have to worry about any discomfort, Infection, or pain in here.

4.2 Project Management

The objectives of project management are to start the project, Planning, design, implementation, execution, testing, closure, and also the Guidelines for the successful project is work to reach the agreed goals within the time limit, quality, and budget standards. The important thing about project management is, it will help to reach each stage properly. It allows focusing on the main parts. Helps save money and time.it will increase the efficiency of each stage.

Project management may include a variety of project management tools to manage project. This means It includes general project management tools that help you to manage everything from grant writing to implementation and project closure.

Gantt chart is the main tool in management. It is a bar chart type that reflects the schedule of the project. This will let you plan and view the project activities and activities according to the predefined schedule. Below I mentioned the Gantt chart of the project.

The data management plan is another tool of this. It should not only represent the necessities of the project, but also observe relevant structural, state, and central guidelines and principles.

Next is the budget plan. The proposed budget should follow the format established by project management. The sponsored programs office budget preparation includes regular budget types.

Next, The project plan determines when and how the risk can be mitigated by setting the conditions for compliance. It not only includes plans for quick identification, but also measures to respond, and report and resolve. It represents the division of the work phases to be carried out by the research project team. It defines the field as visual, manageable parts of the team.

Time management – The work provided by the Solent is limited to 400 hours. After the time break, I started my work schedule. It makes the project flow even better, and that will increase the effectiveness of each stage of my project. I spend more time collecting quality data and also choose the methodology for reporting. I divide the workload based on the importance of each step. For further understandings, I mentioned the work breakdown structure in appendices.

This may allow completing tasks on time by allocating them to do it for a limited time. This helped me manage my workload more efficiently. When I have a time-consuming task, the brain rebuilds itself to follow the structure and completes the task in the required time frame. Thus, I managed the time well, then I could easily get my work done on time.

I hope this given the quality and standard of my project. Accurate use of time and priorities can easily lead to better quality tasks. Pre-planned priorities allowed to focus and concentrate on important tasks so that could maintain attention and focus as well. As a result, the quality of work is upgraded.

effective time management helps to improve the productivity and effectiveness of the project. These skills supported to get things done faster without compromising on quality. When it comes to unimportant works, my productivity can sometimes go wrong, but effective time management skills will allow you to start significant tasks on time.

Workflow management- This can help to manage the steps of tasks in the process. Includes workflow management which explores opportunities and improves those in an effective way. This can show clear opportunities to define and change the flow of the process.

The results of workflow analysis and management can lead to massively enhanced results. This will be helped me to succeed. I Build the workflow effectively which can Understand the whole picture step by step while automating and controlling. workflow management systems make it easy to prevent mistakes from the entry point. Whenever the error occurs system locates the particular position. This management is greatly reduced. The responsibilities of each step are clearly stated with a set of goals. Everything is more open with more control over data access than ever before.

Risk management- The project is based on IoT. But I am not aware of the components which is related to IoT. That is the main risk I was faced. As I did more research, I have learned many lessons to overcome that risk which I mentioned. The cost is another matter. The actual price is higher than planned, so I can replace it with something else, as I have a limited amount of time.

In the middle of implementing one circuit were burned mistakenly. thus, I tried my best to replace it because I had only a limited time schedule, anyhow I mitigate those kinds of risky states and I followed some contingency plans. therefore, I believe whatever happens I had the capability to tolerate such issues.

Risk management practices determined where projects should be focused on. And also risk management is in line with current management procedures that I have already planned and is designed to understand the project's capabilities and to conduct peer reviews, evaluation. This may help me to access better quality and better information and make better decisions based on the reality of the project. Moreover, it gave Real-time access to risk information through the project management dashboard. This means that results are made based on the latest data. In addition, knowing how to actively manage risk is key to the success of a project. With the risks and frameworks of being able to communicate openly with supervisors about development tasks, everyone starts to work, knowing that success is the predictable outcome.

4.3 Cost Analysis

Below I mentioned the budget plan of my project.

Hardware Device	Quantity	Cost
Emotion Sensor	1	Rs.4000
MCU (Micro computer Unit)	2	Rs.3300
Tsp 32	1	Rs.250
LED Ring	1	Rs.650
MP3 Player	1	Rs.4750
Perfume Dispenser	1	Rs.2500
LED	1	Rs.50
Arduino	1	Rs.8900
Jumper Wires	1	Rs.300
Box	1	Rs.500
LCD	1	Rs.2500
Buzzer	1	Rs.100
Shipping & Tax		Rs.3000
Total		Rs.23 750

Table 1 cost analyse, September 2020

4. Design

In this project, I developed a wearable device designed for the home environment. It calculates the user's pulse through the sensors and calculates the range of the user's emotions. That is, the device detects the pulse and identifies the range of emotions. Next, it communicates with the controller, and the system functions in the commanded manner.

when the user is anger, the Lights can increase the level of anger, so the lights will be warmer. It also turns on the air conditioner. Additionally, play warm music from the speaker and the controller turns on the perfume dispenser. Finally, there are audio players that give the advice to control the emotion of the users. Studies show that bright light helps us to feel more vibrant and decisive.

Moreover, *'perfumes will helps to increase the Fragrance. Perfumes increase stress and help to fight stress and other anxiety problems., Enhances Mood, Boosts Confidence, Makes You Attractive, Aphrodisiac, Boosts Health, Triggers Memories, Aromatherapy, Treats Insomnia, Cures A Headache. perfume helps lift your mood, it will help to reduce the stress and other anxiety-related issues. You can lift your spirits by overcoming anxiety by using your favorite fragrance.'* (C, 2020)

Finally, temperature also an important aspect of, anger and anxiety. Therefore, the air conditioner is turned on automatically.

If the User is in anger mood, it will adjust lights, air conditioner, perfume dispenser according to the command.it will play calm music and the audio player will advise them as "this is a simple emotion range that everyone face. We don't want to think too much about that, you have to be a success in life, do not want to worry about these kinds of irrelevant things and so on". likewise, it will bloom the mood of the user and helps to calm the mind. This is made as a user-friendly device which they like to have it.no more side effects in that.

When the user is sad, all components work on commands related to the sad state. Next, the audio player will advise you to change your mind. motivational truths will be presented to avoid emotions. People generally have problems. They do not have people to ask for advice with a sad mind. The system will rescue you from that situation. And also, it will advise how to avoid their situation.

For instance, it will ask the problem of the human gently and give 10 minutes to talk. After that, it will inspire them over sadness.

Finally, even in a state of fear, the system works relate to the state of fear. The audio player helps to overcome the situation. This means it will motivate the users using strongness facts, braveness quotes.

This system avoids these critical problems and promotes the good of society. We hope that progress will increase unhealthy feelings. People can live long peacefully.

5. Implementation

I implemented an emotion control device that avoids the effects of negative emotions. In this project, sensors such as GSR, pulse, and temperature are used to develop the system with Arduino. Sensors are attached to the controller. All information will be displayed on the dashboard; So, I can use my smartphone to monitor.

I invented this device to look like a wristwatch. There is a pulse sensor I already assign it will detect the pulse rate. And also, there is a GSR sensor to detect the mood. This will determine the motion range through the pulse. These sensors are communicated to the controller. Additionally, the system connected with a relay and wireless. In this system, communicated over the Internet.

In addition, the temperature sensor detects the temperature. Suppose the value is in the extended range, the air conditioner will automatically adjust and turn on the perfume also. When the range of motion is high and it could find that the user is in the anger stage, then the light will automatically switch to calming. Play cool music from the speakers and the audio player will talk as I programmed.

The Blynk platform was used for visualization. That will help to determine if the information is working properly or not. In addition, the entire system is connected to the Blynk via the same connection. The project is designed for any type of human. The system helps to determine the emotional state between the GSR and the pulse sensor. The device will help you to avoid negative emotions as soon as possible.

Below I mentioned the sensors and Actuator and components which I used to implement the system.

- Pulse Sensor – I used different types of sensors in this project. I mentioned them below. This may detect the heart rate. Blood flow; Also update via

the dashboard. Arduino board is -connected with the sensor and identifies the pulse/heart rate. That may send all the data over the Internet. The Blynk platform helps to understand analytics.

- Temperature Sensor – this is used to determine the amount of heat and warmth. As soon as the sensor fixed to the Arduino that detects the temperature and sends the collected information to the Application.

- GSR Sensor – This may detect the emotional state of the person. When the user was in anger or sad that will identify the current state and send information to the Blynk app. We can easily detect the emotion with help of this sensor.

- Relay – The relay is used as Actuator.it is used a low voltage signal to control the high voltage circuit. A relay is like a switch that will electromechanically control the circuit.

Arduino Uno board connected with the sensors which improves performance and increases the system efficiency. Then, as I planned, everything is programmed. Although the blynk platform, analyze and monitor data from the system.

- Wi-Fi- Wireless using radio frequency signal instead of wires to connect my device. The main goal of Wi-Fi is to provide faster and quick data transmission and wireless communication. I communicate with components using WIFI.

.

- Data Visualization /Analysis -this is a data visualization platform which is compatible with my system. It has Quickly created interfaces for control and monitoring between the smartphone. In addition, I created dashboards, widgets, buttons, and turned the pins to represent information from the sensors. By use of Blynk, I could predict the data at any time.

Below I mentioned the Block diagram.

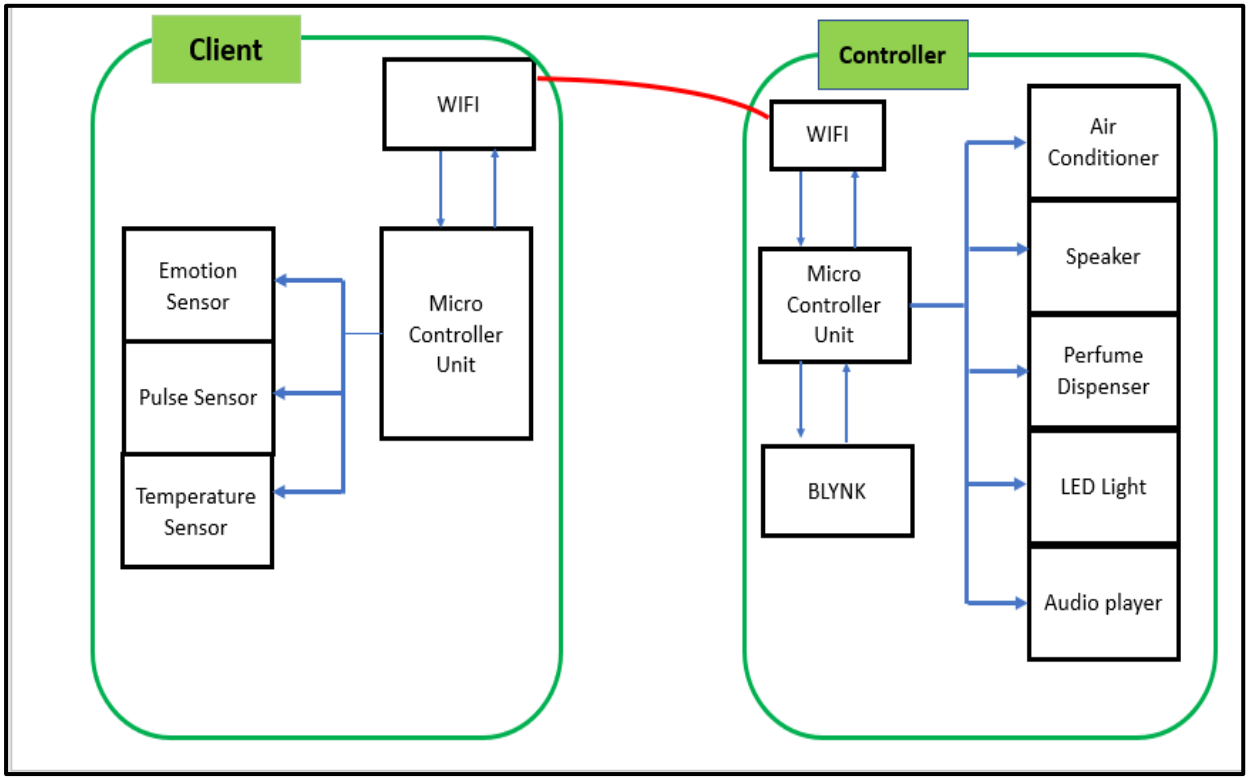


Figure 10 Block diagram, November 2020

Below I mentioned the Overview Diagram.

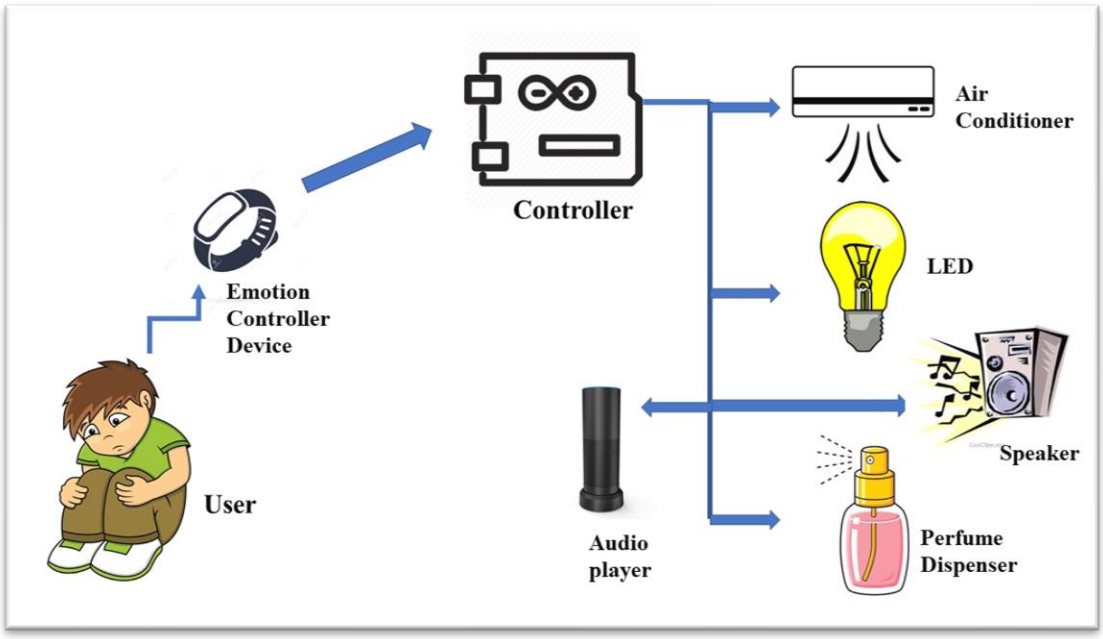


Figure 11 Overview diagram, November 2020

Below I mentioned the IOT Model.

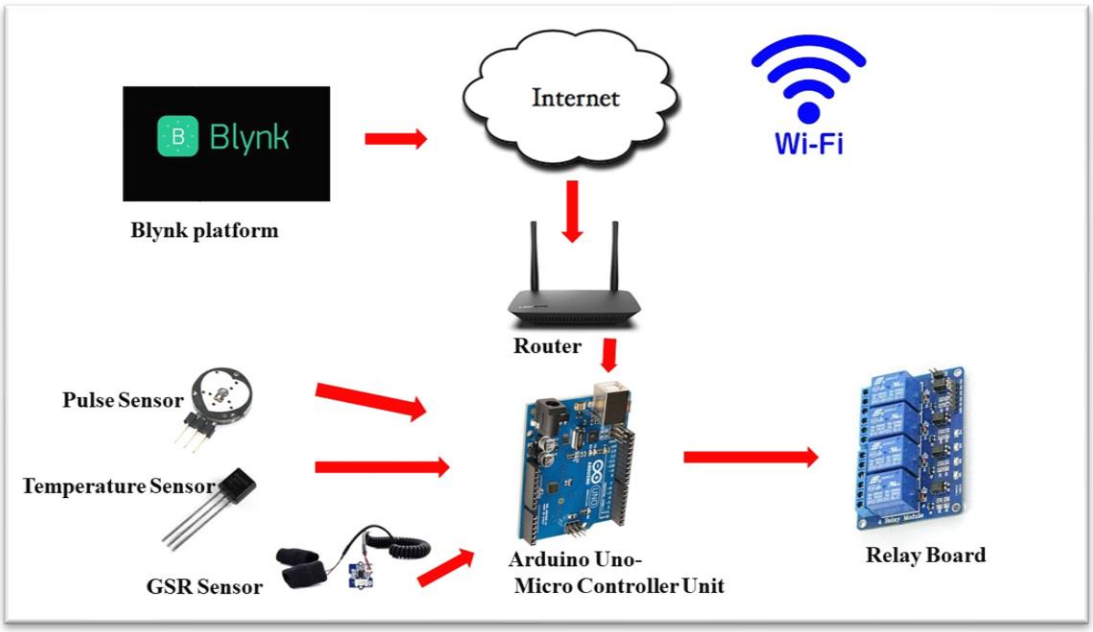


Figure 12 IOT model, November 2020

I used ThinkerCAD for Automation Simulation.

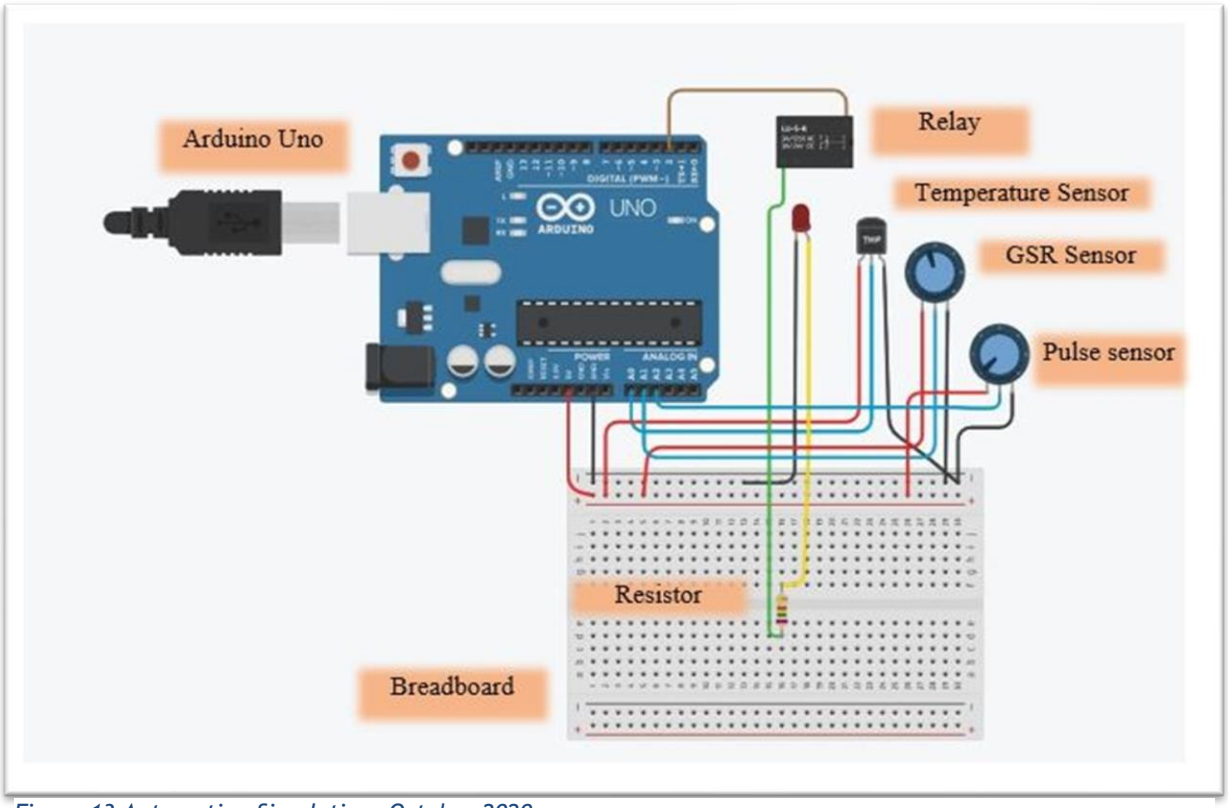


Figure 13 Automation Simulation, October 2020

The schematic diagram above gives a proper understanding of the simulation.

I have designed the system using components and sensors. Above diagram representing the idea about the system which I have developed. This may help to gain a proper understanding of the implementation process.

Temperature, pulse, GSR sensors are connected to the Arduino board. When the temperature rises, automatically turn on the A / C in the artifact. But in the above designing phase, there are no components for AC. In that case, I have used a light bulb instead of an A / C.

The pulse sensor gathering the pulse range and identifies the range of emotion according to the motion range.

I have used a resistor to adjust the voltage of the bulb. If not, there is a chance of burning.

To understand more about this, I attached my thinker's CAD file below.

Link to the Thinker CAD file: https://www.tinkercad.com/things/1BQD4RFhldB-ae2-shenaz/editel?sharecode=8PaFeY7dnJFpNwymrKcpw4SbTFDYbp3_B7TGaf2QNYw

Next, I used Cisco Packet Tracer for Communication Simulation.

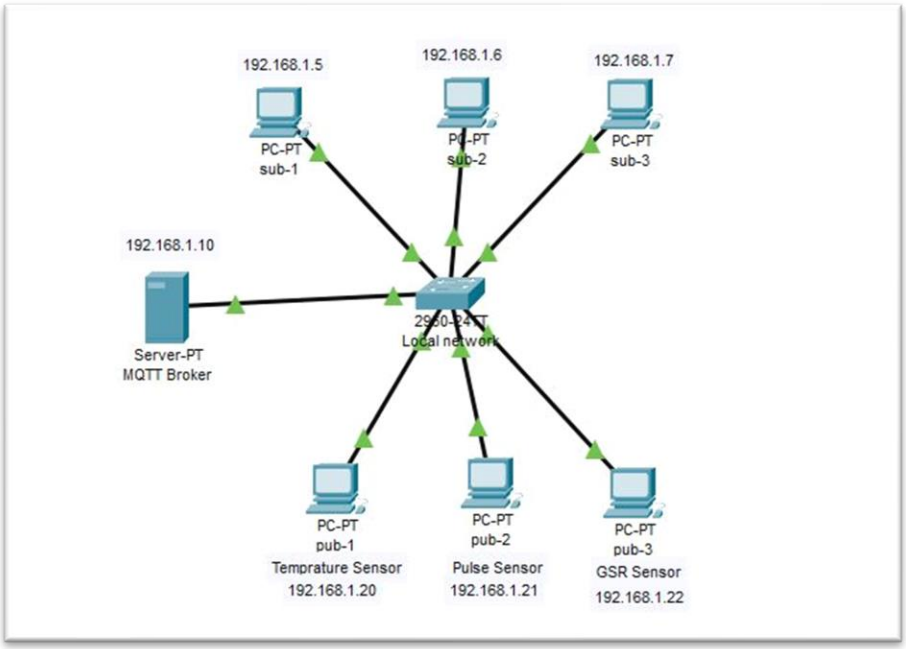


Figure 14 Communication Simulation, October 2020

The screenshot above gives you a brief overview of the communication simulation. The server acts as an MQTT broker and is connected to the local

network. In the simulation, there are three publishers and three subscribers associated with the local network. Pub-1 represents a sensor of temperature, Pub-2 represents a sensor of pulse and Pub-3 represents a sensor of GSR.

MQTT has one to many relationships. This means that the specific broadcast station distributes the signal. Who is Eligible for the received signal, they can receive. MQTT publishers and subscribers managing by the MQTT brokers.

Publishers are publishing the data to the server (broker), Subscribers have to wait for f to get the data from the broker.

At the bottom of the screen, how I completed the communication simulation relate with MQTT broker how It has connected with each other.

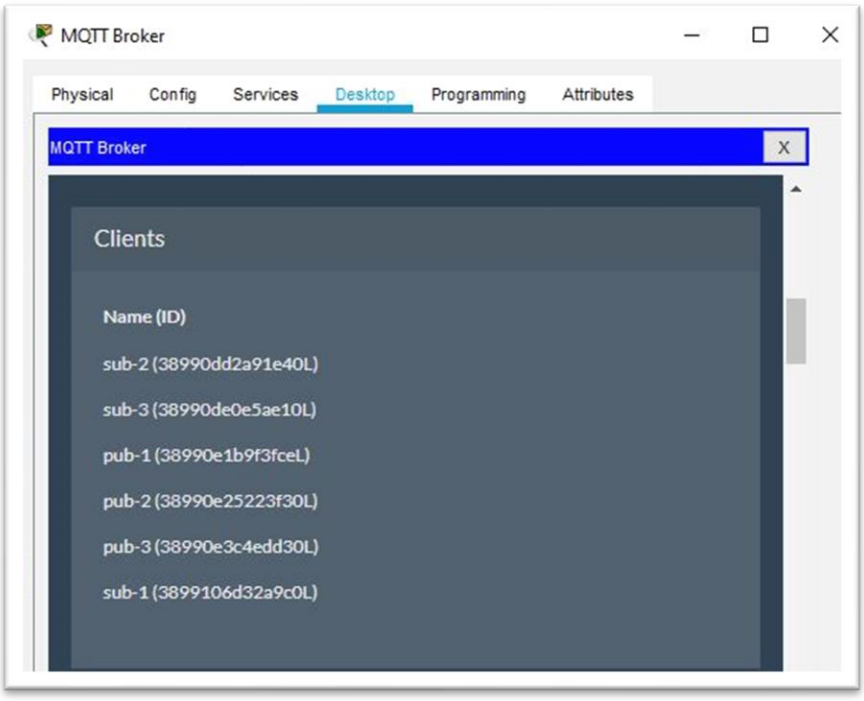


Figure 15 MQTT Broker, November 2020

Below I represented how MQTT broker has taken the connection between publishers and subscribers. In below MQTT Broker founded three subscribers as well.

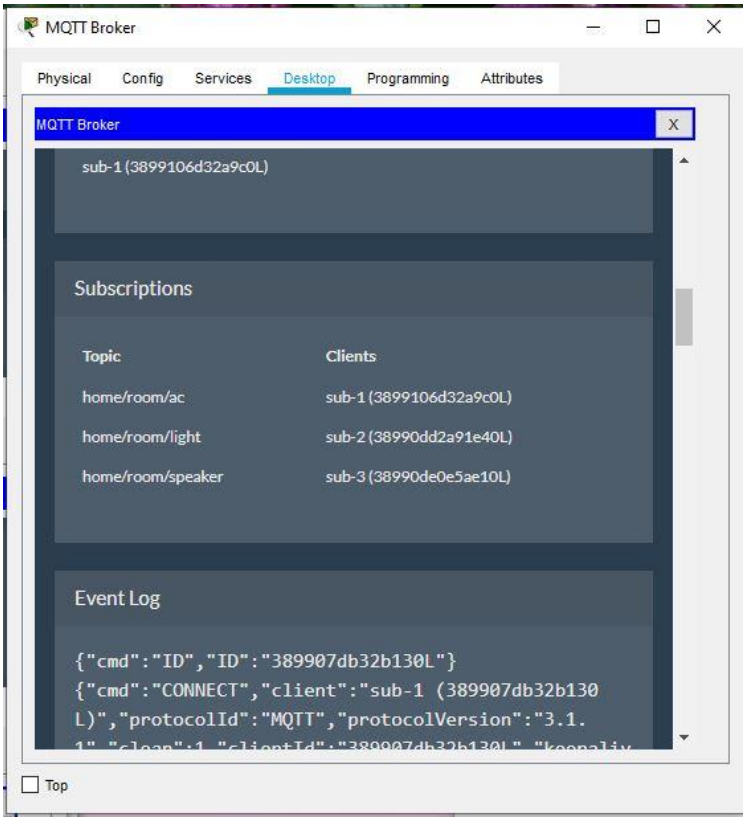


Figure 16 MQTT Subscriptions, November 2020

In the above I provided evidence for pub & sub. which means, Pub-1 published their data to the sub-1. Below I mentioned the payload of a/c.

Figure 17 AC Payload, November 2020

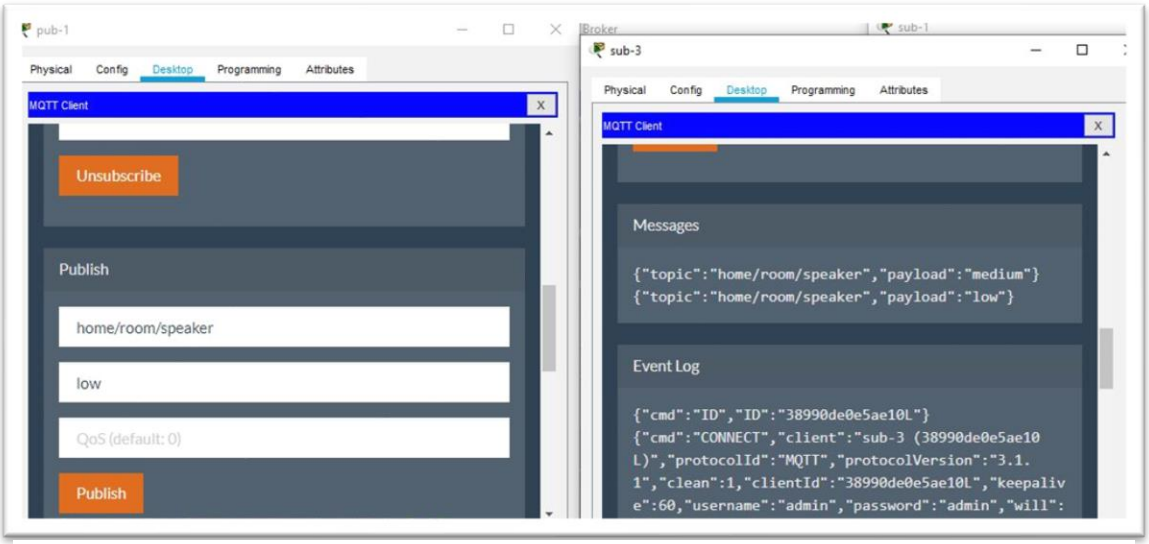


Figure 18 Sub-3, November 2020

Again I provided the evidence for another for pub & sub. In there, Pub-1 has published its data to the sub-3.

To more understand about this, I attached my Cisco packet file below.

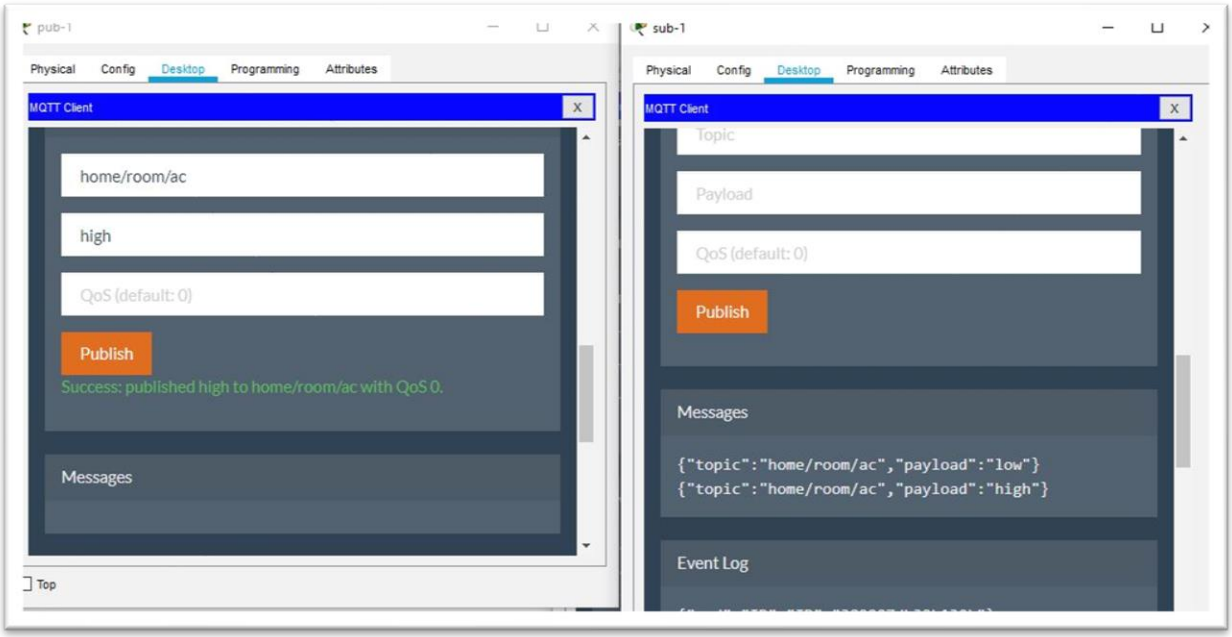


Figure 19 Sub-1, November 2020

Link to the Cisco packet Tracer file: https://ssu-my.sharepoint.com/:u:/g/personal/5mohaf30_solent_ac_uk/EdquYhsKXElJkpKTySCd9d0BdSK6y3Ni37D_9Yr7Un2FPg?e=mVBYqO

Next, I used the Blynk Platform to Simulate the Pubs and Subs.

I used the blynk platform to analyze the component movements. That may support to know Whether this information is flowing correctly or not. The whole system is working under the same connection.

I've taken a few steps to analyze the data in blynk and simulate Pub and Sub. Such as,

- First, I added some visual widgets for visualization.
- Then I assigned a device name and virtual PIN.
- Then I set the range to output, for instance, set Gsr range as 72-167
- Then arranged the device as my wish.
- next I email the authentication token.
- Then I coded the Python file and pasted that auth token in there.
- I entered the virtual PIN number in the code.
- Then save the code and run it at the command prompt.

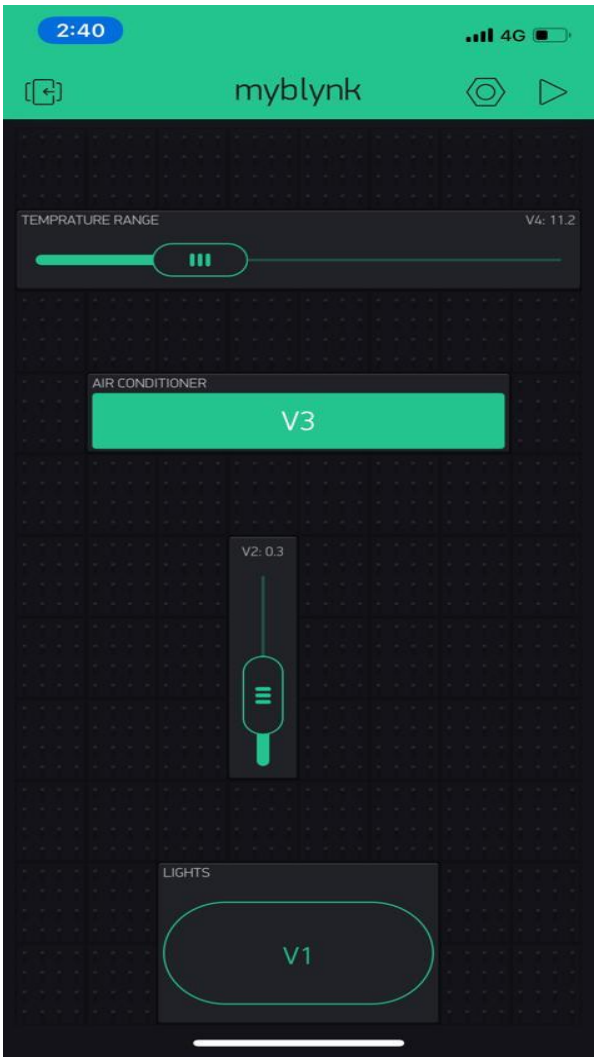


Figure 20 Blynk Platform, November 2020

- Whenever I alter the ranges or clicking the buttons, the Outputs are represented in the command line.

Below I provided the screenshots of my codes and outputs in appendix.in addition, I mentioned the link to the video evidence.

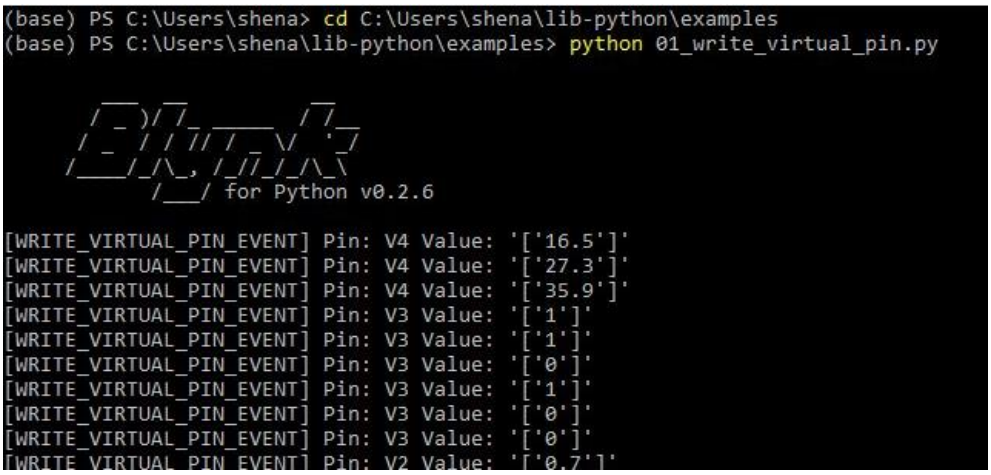


Figure 21 Blynk Output, November 2020

Link to the Blynk app Video: https://ssu-my.sharepoint.com/:v:/g/personal/5mohaf30_solent_ac_uk/Ec_Hxxck55ZPnX7IIkk_fzAB7owvcyP_NPBpMiEjpbsfiw?e=AI0ptH

Link to the command prompt output Video: https://ssu-my.sharepoint.com/:v:/g/personal/5mohaf30_solent_ac_uk/EUdGWUbKYqpOgJg5Cru9wC4BgPv0Z2RQ8Zbla9R7fdn4VA?e=fX2wJn

6. Test cases

In this section I provide the detailed explanation about all the testing results and how I plan to test the components separately and also how I test the entire system. Below table representing the plan of my testing.

Test cases							
Test no	**Test scenario**	**Test case**	**Requirement**	**Test data**	**Expected Results**	**Actual results**	**Pass/Fail**
T001	Individual sensors testing	Check the Temperature Sensor	Adjust the values for temperature	turn on the switch and adjust the range	Display various temperature values	success	pass
T002		Check the Pulse Sensor	Adjust the values for heart rate	turn on the switch and adjust the heart rate	Display various heart rates	success	pass

T003		Check the GSR Sensor	Adjust the values for GSR	turn on the switch and adjust the gsr range	Display various gsr values with appropriat e mood	success	pass
T004	Automation simulation	Check the GSR Sensor	Adjust the GSR sensor to various ranges	Adjust the value 72>120	Happy mood	success	pass
		Check the temperature sensor	Adjust the values for temperature	Set value =140	Temp high so Switch on the AC	success	pass
		Check the pulse sensor	Adjust the values for pulse rate	Adjust to various points	Display the Heart value	success	pass

T005	Communication simulation	Checks the connection of Pubs & subs	Publishing data to the servers	Subscribe Sub-1 as room AC, sub-2 as the room light and Sub-3 as Speaker	Display the clients in MQTT broker server	success	Pass
T006	Blynk test	Monitor the actions of the components	Represent the outputs while adjusting the ranges of components	Adjust the buttons, widgets	Represent the outputs values in command line	success	pass

Table 2 Test cases, October 2020

Test and Validation

I have used test cases to test the simulation. The Blynk platform monitors activity and monitors components of the system. I first planned to test automation simulation. In addition, I tested each sensor separately for proper operation and enhanced the efficiency.

I Added Sided switches to each sensor for check separately.

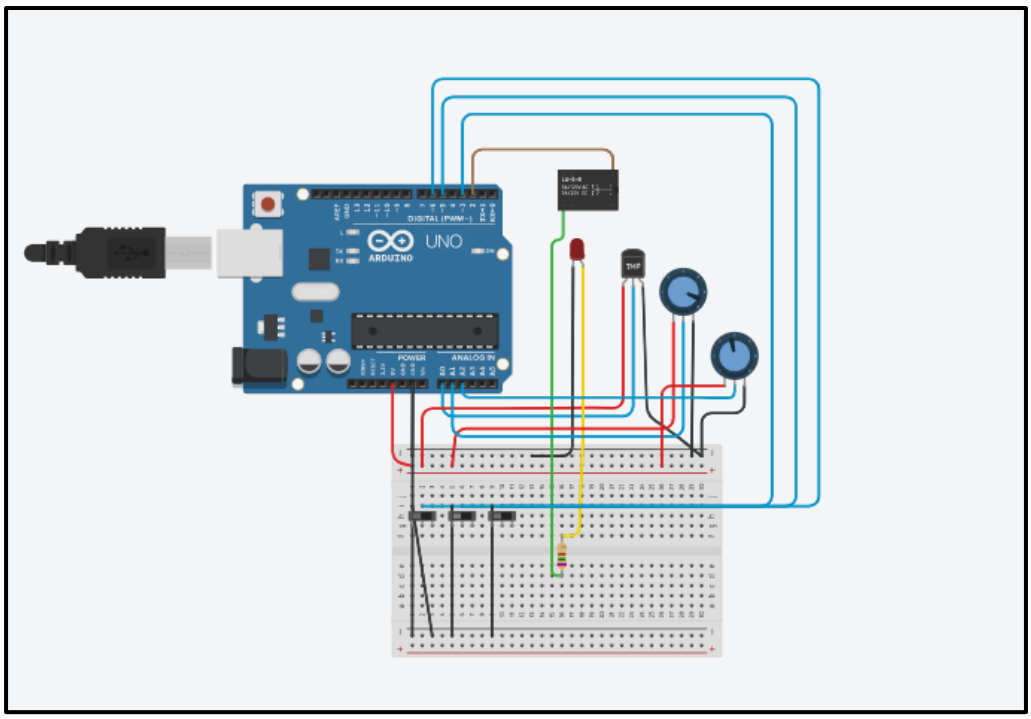


Figure 22 Automation testing, November 2020

Test no: T001

I have checked the temperature sensor first, in that case when I turned on the switch that was representing the temperature values which I mentioned below. Which means the temperature sensor was working properly.in the below I provided the evidence codes and link to my thinker CAD file.

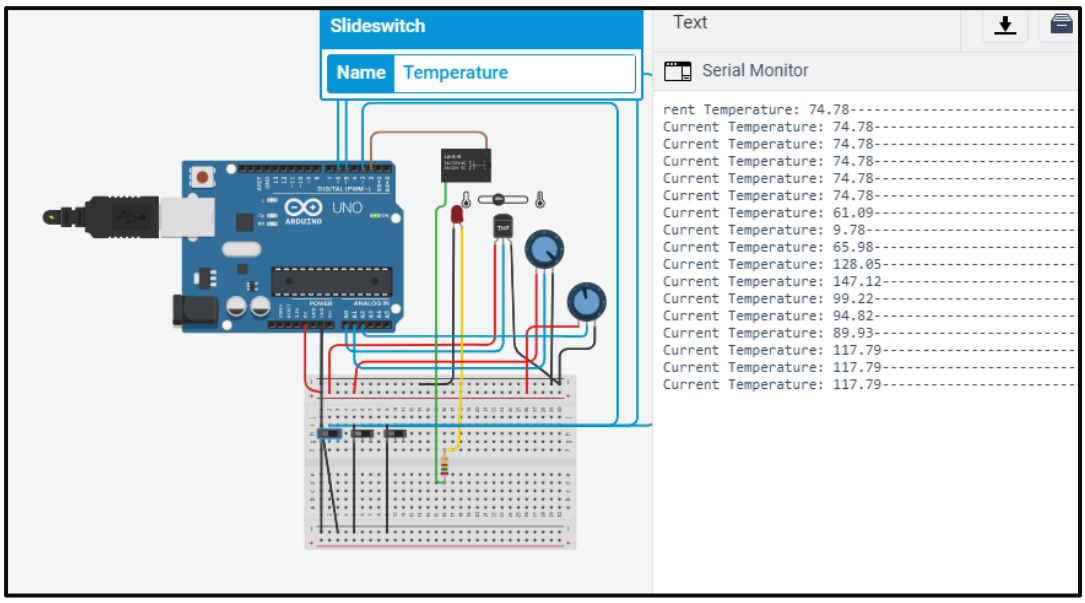


Figure 23 Test no: T001, November 2020

Test no: T002

Next, I have checked the Pulse sensor, in that case when I was on the switch that was representing the heart rates as I mentioned below.

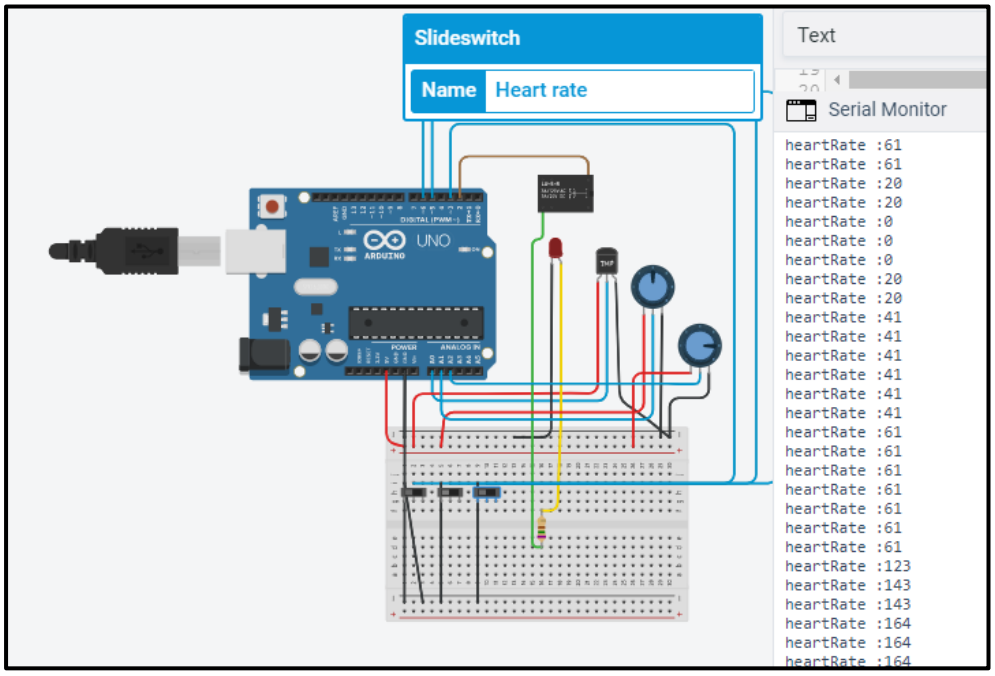


Figure 24 Test no: T002, November 2020

Test no: T003

Next, I checked the GSR sensor, in that case when I was on the switch that was representing the gsr values with the mood how I was programmed. Which means the GSR sensor was working correctly. I provided the evidence screenshot below.

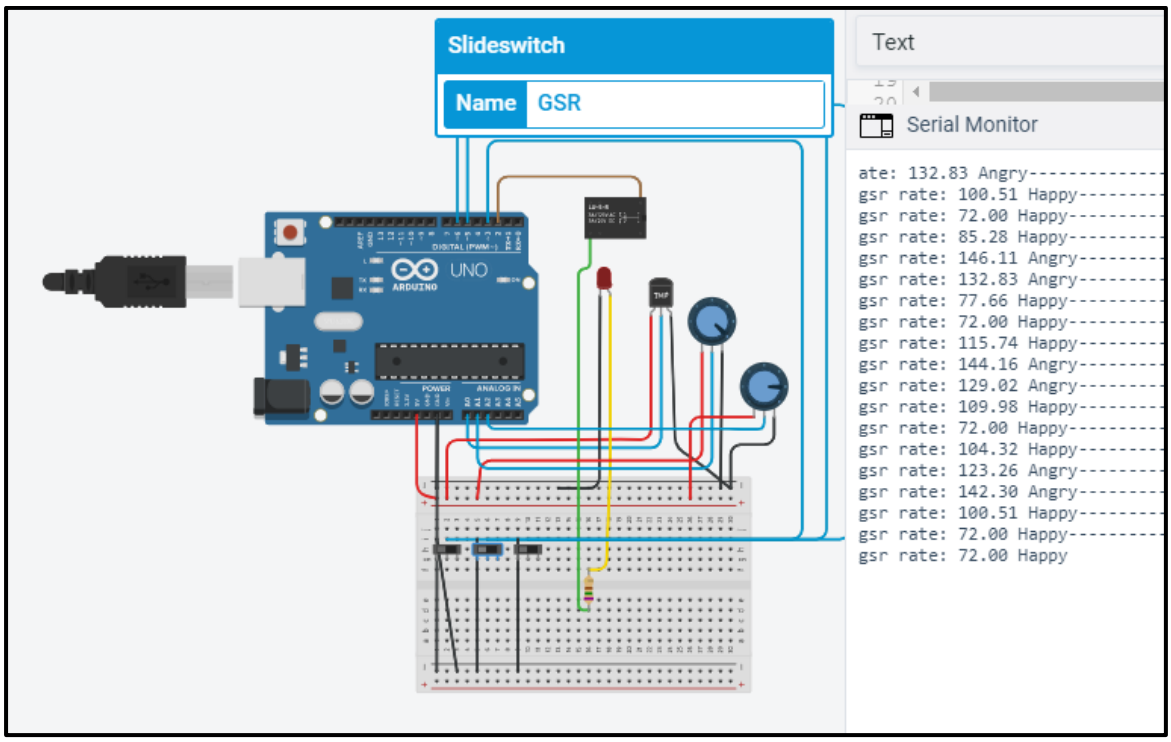


Figure 25 Test no: T003, November 2020

Test no: T004

Next, I simulate the entire system without switches. Below I mentioned the codes and outputs in appendix.

i provided the screenshots of the outputs below. Current temperature, GSR rate and heart rate are expressed in terms of emotion inside the serial monitor. If the temperature is high, the light will switch on automatically. I used light instead of a/c.

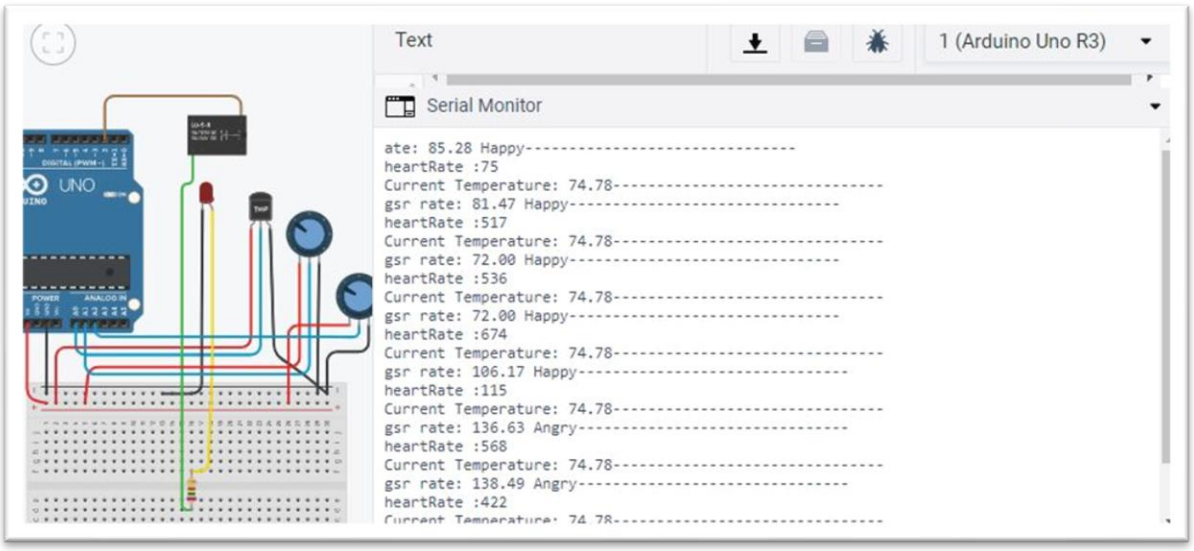


Figure 26 Automation output 1, November 2020

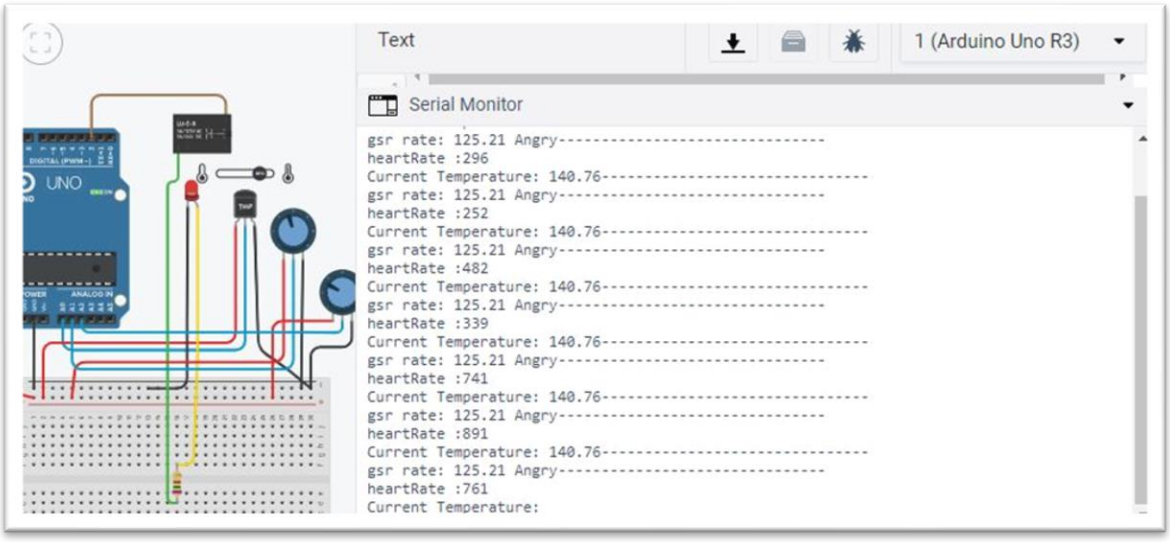


Figure 27 automation output 2, November 2020

Inside the codes There is no errors. Those sensors and codes are working appropriately. I have done the simulation testing successfully.

I provided the video of the Thinker CAD automation I below.

Link to the Video: https://ssu-my.sharepoint.com/:v:/g/personal/5mohaf30_solent_ac_uk/EaG7yuZHY6RDgX_px-LLdDcBji20nkHulO5YV0jh2IBdtQ?e=JJCsPv

Test no: T005

Below I tested the communication simulation. Testing was successful and expected results came.

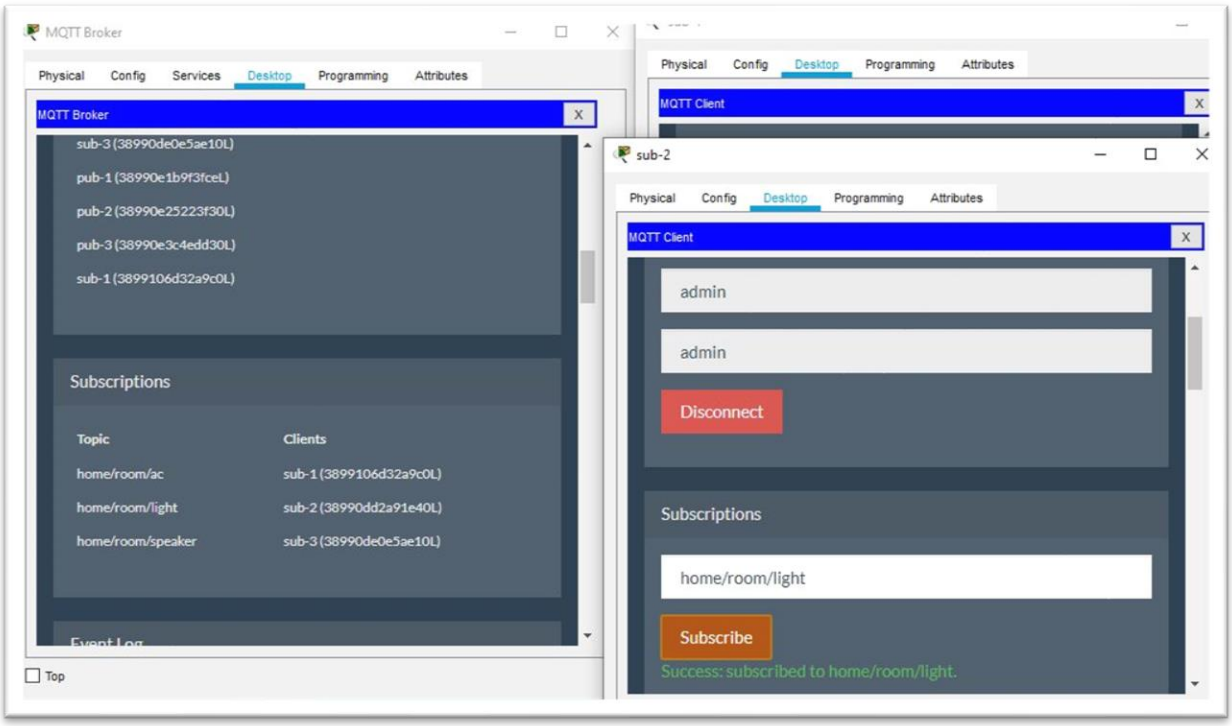


Figure 28 Test no: T005 output 1, November 2020

I subscribed to sub-2 as the room light. That was subscribed in the MQTT Broker in above.

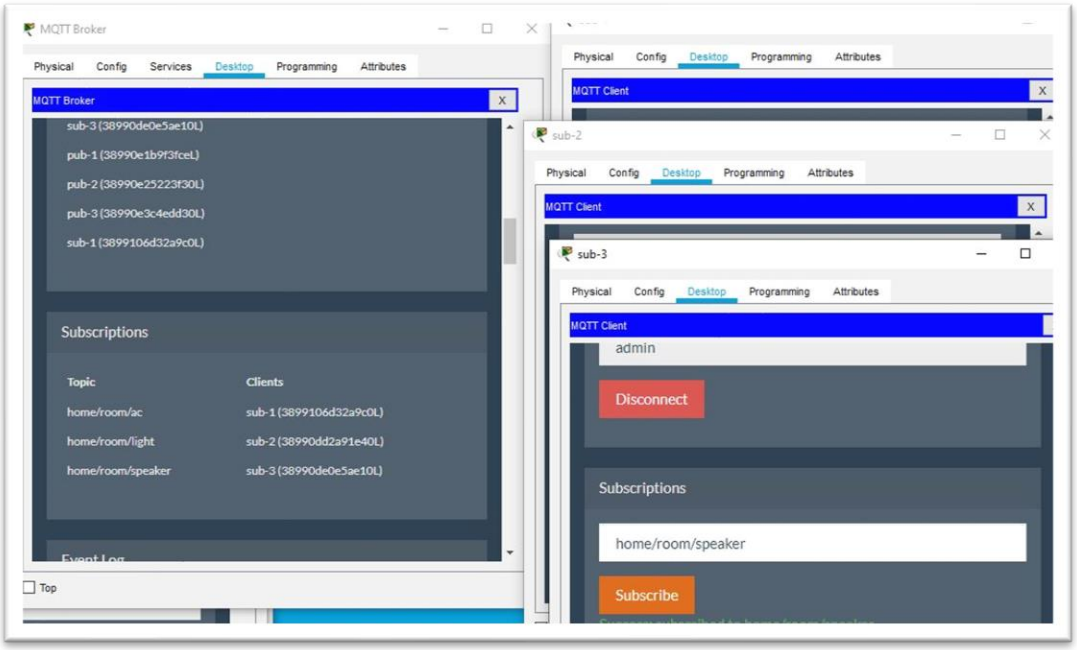


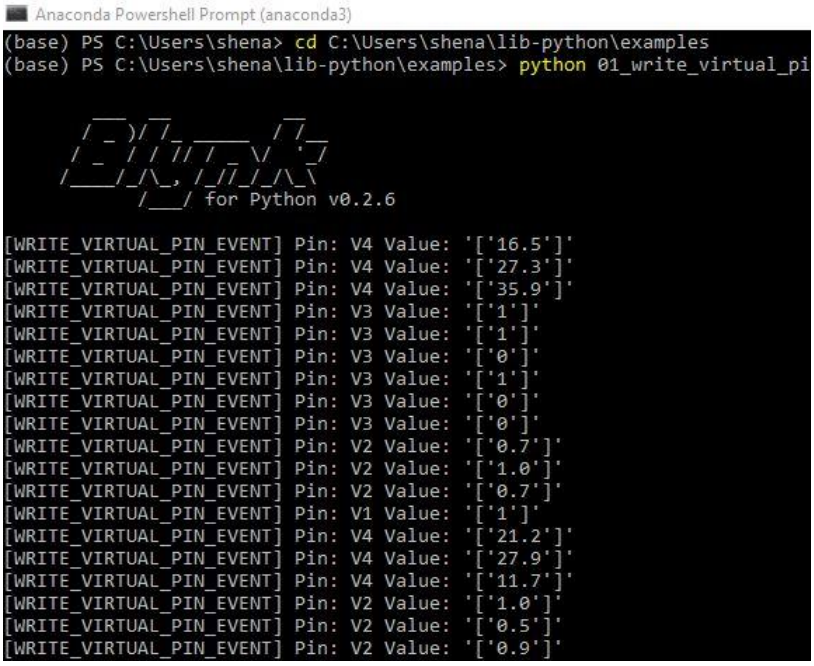
Figure 29 Test no: T005 output 2, November 2020

I subscribed to sub-3 as the room speaker. That was subscribed in the MQTT Broker in above.

Considering all the outcomes, Pubs & subs are working appropriately through the MQTT Broker. Below I provided the evidence file of the Communication Simulation.

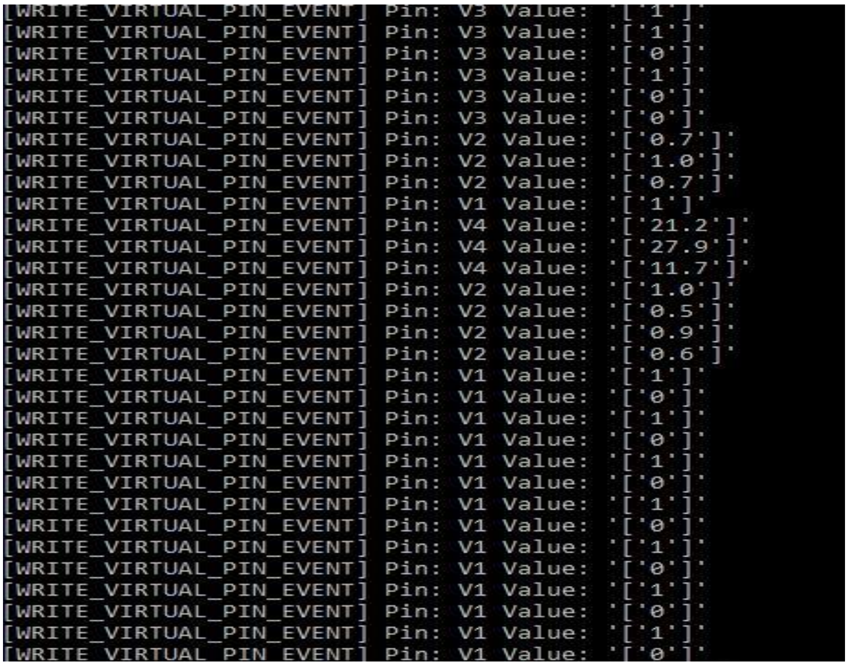
Test no: T006

Below I tested the Blynk platform. Testing was successful and expected results came. I provided the evidence below.



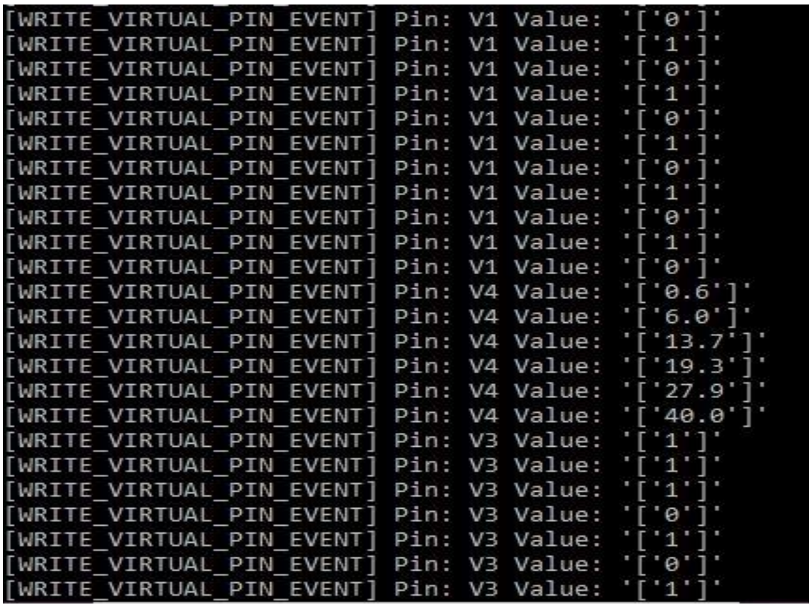
```
Anaconda Powershell Prompt (anaconda3)
(base) PS C:\Users\shena> cd C:\Users\shena\lib-python\examples
(base) PS C:\Users\shena\lib-python\examples> python 01_write_virtual_pi

    ___  __          __
   / _ )/ /_ _____  / /__
  / _  / / // / _ \/  '_/
 /____/_/\_, /_//_/_/\_\
        /___/ for Python v0.2.6

[WRITE_VIRTUAL_PIN_EVENT] Pin: V4 Value: '['16.5']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V4 Value: '['27.3']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V4 Value: '['35.9']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V2 Value: '['0.7']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V2 Value: '['1.0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V2 Value: '['0.7']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V4 Value: '['21.2']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V4 Value: '['27.9']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V4 Value: '['11.7']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V2 Value: '['1.0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V2 Value: '['0.5']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V2 Value: '['0.9']'
```

Figure 30 Test no: T006 output 1, November 2020



```
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V2 Value: '['0.7']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V2 Value: '['1.0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V2 Value: '['0.7']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V4 Value: '['21.2']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V4 Value: '['27.9']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V4 Value: '['11.7']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V2 Value: '['1.0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V2 Value: '['0.5']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V2 Value: '['0.9']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V2 Value: '['0.6']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['0']'
```

Figure 31 Test no: T006 output 1, November 2020



```
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V1 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V4 Value: '['0.6']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V4 Value: '['6.0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V4 Value: '['13.7']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V4 Value: '['19.3']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V4 Value: '['27.9']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V4 Value: '['40.0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['1']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['0']'
[WRITE_VIRTUAL_PIN_EVENT] Pin: V3 Value: '['1']'
```

Figure 32 Test no: T006 output 3, November 2020

Link to the Blynk app Video: https://ssu-my.sharepoint.com/:v:/g/personal/5mohaf30_solent_ac_uk/Ec_Hxxck55ZPnX7IIkk_fzAB7owvcyP_NPBpMiEjpbsfiw?e=AI0ptH

7. Conclusions

This project is an inventive project for the industry. No one has ever started such a system before, and this is a creative way to control mental states. This is a neglected problem that everyone should be aware of and can be a huge disaster. This system avoids negative emotions and helps users and live peacefully. This system aims to improve society's well-being and to calm people's minds. It helps people feel free and innovative.

According to the script, a Wearable emotional control device is an essential tool that everyone needs and can be used by any kind of people. Because most people experience anger more often than they would like to admit., According to research and my own experience, most couples get angry at least eight to ten times a day.

Negative emotions give a lot of power to good and bad but if you let yourself to be controlled, it can be very risky. Orally In any intimate relationship, you will not be harmed; You will be oppressed. When this happens, it can easily destroy your viewpoint; It can block your capability to love; So, it may limit us to see everything clearly.

Today, uncontrolled emotions, such as anger, are a major problem. Because it is a source of sorrow and grief. anger will destroy relationships. When one person is depressed, he often acts recklessly for another. The most common rule is to count the number in one to ten before you open your mouth to speak when you are angry. But No one has that patients to doing those kinds of stuff.

When a person is constantly upset and does not control or managing it, it can have serious consequences for his health. Anger can lead to significant effects on the health of many people. Health-related anger can lead to headaches, nausea, and vomiting. depression; When a person is upset, people with these conditions may lead to stroke. There is also a higher risk of high blood pressure or heart disease.

And also, the Sadness, is a feeling that people experience at some point in their lives. Sadness is a natural response to painful emotional distress. There are different levels. But like any other emotion, sadness is temporary and will pass over time. In this way, Sadness is different from depression.

Depression is a chronic illness.it will spoil in social work and other important activities. Without treatment, depression can last a long time.

In that case, We should take a step to avoid it or decrease it. Therefore, I recommended my emotion controller device to avoid these critical situations. People can easily control their dangerous emotions with the wristband, so this project is going to implement a wearable device for humans, where users can control their own emotion levels using the device.

Users expressed different emotions, and the project was well researched. The user's emotion level was the key area that needs to be focused on to cover individual user's emotions. The system was designed and developed in a timely manner because it was exactly well planned the progress of the project and the objects are well defined according to its importance. The entire project is based on IoT, so it is something, which is really going to attract the users.

8. Recommendations/ further development

- I plan to implement AI to my device.
- Already I assigned an audio player which will give advice according to the program.
- In the future, with the help of AI it can give advice automatically.
- And also, it will communicate through the user's smartphone.
- I plan to use an algorithm which gathers the user's URL information.
- It will help to identify user's favorites.
- After that, inside the smart phone whenever the user uses several applications, it will show the pictures, music and videos whatever the favorites which we gathered already.
- The device is made for home environment but in future it is not restricted in that way.
- Which mans it can be move to anywhere.
- Therefore, my device will become more user friendly.

9. Critical evaluation

This assignment gave me an idea to the complete this whole module and what to expect from it. In addition, the instructor's work will be helped me to get better understand as well.

There were many difficulties were occurred while accomplishing this task. I do not have enough knowledge about the online simulation. therefore, I have to study about those but I have only limited time schedule. However, I referred some online sources and Supervisor has helped me to complete those tasks in appropriate time. I had made a lot of progress in this lesson by the end of the project.

I noticed that I found different levels of emotions in different situations.

Nd also This may guide to develop my personal study skills and to better understand about people and their feelings. Also, how to find out the important aspects regarding to the research and how it relates to research topics.

it Developed my perspectives on the people involved in the research.

Since of this research, our emotions come from within. The thoughts are, they come and go When we energize them, we "boost" them by adding insecure thoughts to the top. They grow faster until they show signs of illness and anti-social behaviour. In a fit of rage, others react negatively. They are now beginning to attack themselves and create their own "situation". What started as a disagreement led to real violence.

However, we want to justify our actions. Also, if you want to know the advantages of calmness, you only need to look at the medical certificate. Stress leads to Heart disease Increases the risk of stroke and other disorders. There is no need for practical tests to say that if we cannot live at all, it is the complete happiness and loss of our life (or worse, the loss of someone else's life). Our emotions are under control.

As well as this project helped me to gain more knowledge about IOT (Internet of things) which means, The IoT is the largest frontier that can improve our lives in many ways. In IOT, Devices that never access the network will connect and respond just like smart devices do.

The IoT is a potential human resource for decision-making; Reduced costs and increase the productivity.

You can connect machines or physical devices to other devices. Use of IoT, People can easily connect with the network. When devices are connected to each other.

Finally, I would like to thank the best tutor who gave me the best advice to carry out this lesson.

The advantages of the project is that it can be used by any human being. There is no any limitations and restrictions, it is supported recognise the emotion range though the pulse and GSR rate. Sometimes this machine will help you control your negative emotions as soon as possible. The system is easy to manage. We can analyse the blood pressure and record information as well. In addition, there is a reasonable cost for inventing this device. Therefore, people can affordable easily.

The emotion controller is an automated device designed for the home environment. According to country situation and the corona tragedy, I am unable to complete the real artifact. Thus, my simulation which I developed before the implementation was much more closed to the actual artifact.

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12. Appendices

Appendix A: Work break down structure

I worked 4 hours per day and 5 days per week. According to the timeline I mentioned the Work break down structure in below.

Tasks	Project Task Completed	Day count	Starting Date	Ending Date
1	Project Initiation	2	August 28	September 1
2	Chose the Topic	5	August 28	August 4
3	Get approval from the supervisor	2	August 4	August 8
4	Submit Project outline	8	August 7	August 10
5	Research about the project-literature view	5	August 10	August 14

6	Finalize the reporting methodology	6	August 11	August 19
7	Create the project plan	5	August 10	August 17
8	Collect qualitative data	8	August 12	August 24
9	make Questionnaire form	2	August 12	August 14
10	Gather questionnaire response	3	August 13	August 18
11	Identify the components	5	August 12	August 19
12	Evaluate the components with supervisor	2	August 17	August 19
13	Finalize the Cost Analyse	2	August 18	August 20
14	Design the device	7	August 11	August 20

15	Create block and overview diagram	10	August 9	August 20
16	Evaluate the legal and ethical issues	5	August 11	August 23
17	Evaluate project management phase, risks	10	August 9	August 20
18	Submit the project proposal	3	August 16	August 23
19	Create test cases	10	August 24	September 4
20	Test each component	15	September 7	September 25
21	implementation	20	September 10	October 8
22	Testing – automation simulation	8	October 5	October 15
23	implementation	10	October 16	October 30

24	Testing – Communication simulation	6	October 26	November 2
25	implementation	10	November 2	November 16
26	Testing-data analyse from blynk platform	4	November 12	November 17
27	Plan the further development	6	November 11	November 18
28	Evaluate the conclusion	5	November 16	November 20
29	Finalize the documentation	12	November 10	November 25
30	Design the poster	10	November 16	November 28
project termination				

Table 3 Work break down, October 2020

Project plan

I have done the Gantt chart while doing the Project proposal which I mentioned below.

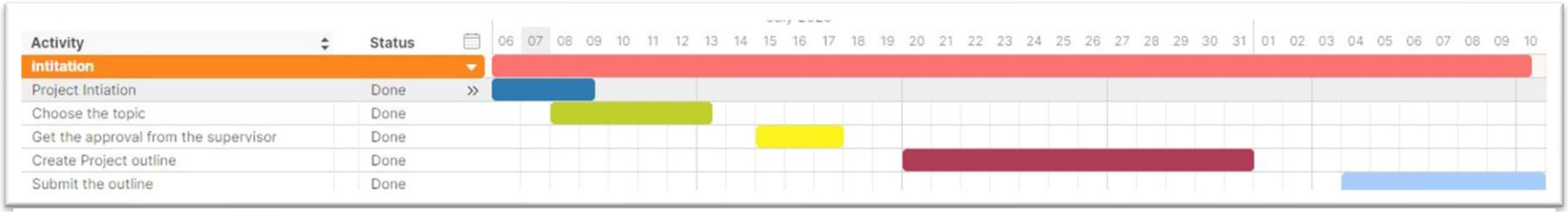

Figure 10 phase one, September 2020

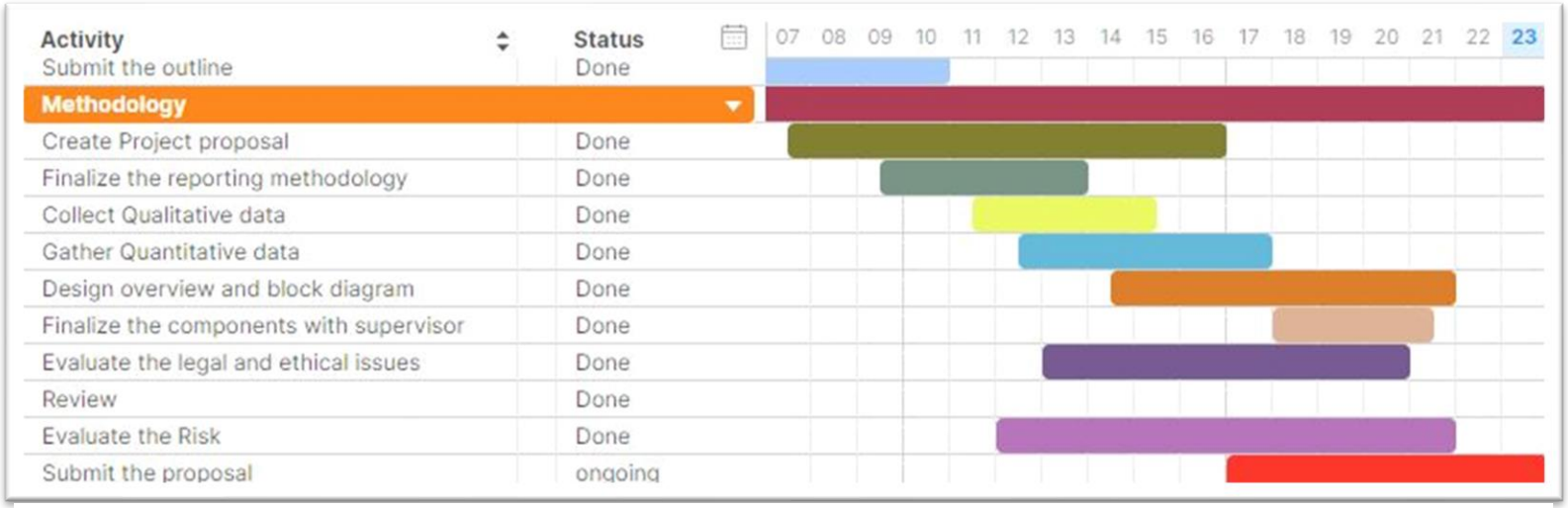

Figure 11 phase two, September 2020

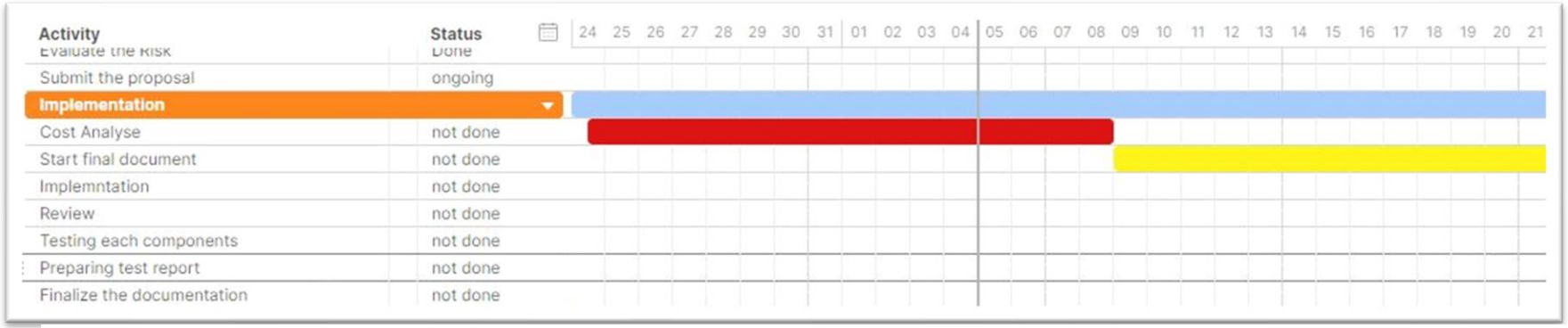

Figure 33 phase three, September 2020

Figure 34 phase four, September 2020

Appendix B: Logbook

Link to the logbook: https://trello.com/b/UMdflOLk

Appendix C: Acronyms

In our daily life, we are experienced by different kind of emotions. That means every time we go through it; we are influenced by these kinds of emotions. From my research, to identify our emotional divisions; Plans have been made to establish, monitor and control support system. It will improve a person's mental growth. I have developed an emotional control device that uses iot to avoid the negative emotional ranges.

Appendix D: Specification

The technical features of the components in the system which I selected;

Sensors

- GSR Sensor

GSR indicates galvanic skin response; It is a technique of measuring the electrical conductance of the skin. GSR lets both electrodes to sense such strong emotions by attaching two fingers to one hand. Here are some details:

Parameter	Value/Range
Operating voltage	3.3V/5V
Sensitivity	Adjustable via a potentiometer
Input Signal	Resistance, NOT Conductivity
Output Signal	Voltage, analogy reading
Finger contact material	Nickel

Table 4 GSR Sensor, October 2020

(Grove - GSR Sensor, 2020)

- Pulse Sensor

Using the pulse sensor is simple, but positioning is important. It is also recommended to cover the sensor with hot glue, vinyl tape or other non-conductive material as all electronic components of the sensor are directly exposed. In addition, these sensors are not suggested for handling with wet hands. Some of the features I have mentioned below.

- ✓ We can call these as Biometric Pulse Rate or Heart Rate detecting sensor.
- ✓ This was a Plug and Play type sensor.
- ✓ Operating Voltage was +5V or +3.3V.
- ✓ And also, the Thickness is 0.125”

(Pulse Sensor, 2020)

- Temperature Sensor

The temperature sensor measures the temperature of the environment; and altered that measured data into electronic data and records; Some of the features I listed below.

- ✓ Simple I2C control
- ✓ Up to 8 on a single I2C bus with adjustable address pins
- ✓ 0.0625°C resolution
- ✓ 2.7V to 5.5V power and logic voltage range

(Industries, 2020)

Actuator

- Relay

This is a controllable power relay with four points to build the Internet of Things project with reliable power control. With the IoT power relay, you can easily control the power of the device with an Arduino. Some of the features I listed below.

- ✓ Trigger Voltage (Voltage across coil): 5V DC
- ✓ Trigger Current (Nominal current): 70mA
- ✓ Compact 5-pin configuration with plastic moulding
- ✓ Operating time: 10msec Release time: 5msec
- ✓ Maximum switching: 300 operating/minute (mechanically)

(rhydoLABZ INDIA, 2020)

Automation

- Arduino Uno

Arduino is about building, interacting, and taking objects. Then Input from various buttons or sensors. Arduino projects can be stand-alone or connected to a computer via USB.
Includes the following Arduino UNO:

Microcontroller	ATmega328P – 8-bit AVR family microcontroller
Operating Voltage	5V
Recommended Input Voltage	7-12V
Flash Memory	32 KB (0.5 KB is used for Bootloader)
SRAM	2 KB
Frequency (Clock Speed)	16 MHz

Table 5 Arduino, October 2020

(Arduino Uno, 2020)

IOT Platform

- Blynk Platform

Blynk is a new platform for you to quickly develop a interface to manage and monitor your hardware projects on your iOS and Android devices. After downloading the Blynk application, create a project dashboard with the on-screen buttons, sliders You can configure graphics and other widgets. You can turn the PIN on / off with the widgets or view sensor information.
(Technology, 2020)

Appendix E: Automation Simulation

Text 1 (Arduino Uno R3)

```
int tempSensePin = A0;
int potentioMeterOne = A1;
int potentioMeterTwo = A3;
int relayDigitInput=2;
int tempSensorInput;
double temp;
int gsrInput;
float gsrPrecent;
int heartRateInput;



void setup()
{
    Serial.begin(9600);
    pinMode(tempSensePin,INPUT);
    pinMode(potentioMeterOne,INPUT);
    pinMode(potentioMeterTwo,INPUT);
    pinMode(relayDigitInput, OUTPUT);

}

void loop()
{
  tempSensorInput = analogRead(A0);
  temp = (double)tempSensorInput / 1023;
  temp = temp * 5;
  temp = temp * 100;

  Serial.print("Current Temperature: ");
```

Figure 35 Automation code 1, November 2020

```
  Serial.print("Current Temperature: ");
  Serial.print(temp);
  Serial.print("");
  Serial.println("-------------------------------");
  if(temp>40){
    digitalWrite(relayDigitInput, HIGH);
  }
  else{
    digitalWrite(relayDigitInput, LOW);
  }

  gsrInput = (float)analogRead(potentioMeterOne);
  gsrInput=gsrInput+1;

  //Y = (X-A)/(B-A) * (D-C) + C

  gsrPrecent = (gsrInput-1.0)/(1024.0-1.0) * (167.0-72.0) + 72.0;
  Serial.print("gsr rate: ");
  Serial.print(gsrPrecent);

  if( gsrPrecent>160.0 && gsrPrecent<=167.0){
    Serial.print(" Sad");
  }
  else if(gsrPrecent>=72.0 && gsrPrecent<120.0){
    Serial.print(" Happy");
  }
```

Figure 36 Automation code 2, November 2020

```
  gsrInput = (float)analogRead(potentioMeterOne);
  gsrInput=gsrInput+1;

  //Y = (X-A)/(B-A) * (D-C) + C

  gsrPrecent = (gsrInput-1.0)/(1024.0-1.0) * (167.0-72.0) + 72.0;
  Serial.print("gsr rate: ");
  Serial.print(gsrPrecent);

  if( gsrPrecent>160.0 && gsrPrecent<=167.0){
    Serial.print(" Sad");
  }
  else if(gsrPrecent>=72.0 && gsrPrecent<120.0){
    Serial.print(" Happy");
  }
  else if(gsrPrecent>120.0 && gsrPrecent<160.0){
    Serial.print(" Angry");
  }

  Serial.print("");
 Serial.println("-------------------------------");

  heartRateInput = (float)analogRead(potentioMeterTwo);
  Serial.print("heartRate :");
  Serial.println(heartRateInput);


}
```

Figure 37 Automation code 3, November 2020

Next, I used the Blynk Platform to Simulate the Pubs and Subs.

I provided the screenshots of my python codes.

```
import blynklib

BLYNK_AUTH = '3Qr_ePbEa7CdeWXs5jfZy23vVOcKVr32'

# initialize Blynk
blynk = blynklib.Blynk(BLYNK_AUTH)

WRITE_EVENT_PRINT_MSG = "[WRITE_VIRTUAL_PIN_EVENT] Pin: V{} Value: '{}'"


@blynk.handle_event('write V4')      #Temprature range
def write_virtual_pin_handler(pin, value):
    print(WRITE_EVENT_PRINT_MSG.format(pin, value))

@blynk.handle_event('write V3')      #Air Conditioner
def write_virtual_pin_handler(pin, value):
    print(WRITE_EVENT_PRINT_MSG.format(pin, value))

@blynk.handle_event('write V2')      #Emotion Range
def write_virtual_pin_handler(pin, value):
    print(WRITE_EVENT_PRINT_MSG.format(pin, value))

@blynk.handle_event('write V1')      #Lights On
def write_virtual_pin_handler(pin, value):
    print(WRITE_EVENT_PRINT_MSG.format(pin, value))

while True:
    blynk.run()
```

Figure 38 Python code, November 2020