



UNIVERSITAS BHAYANGKARA JAKARTA RAYA
FAKULTAS TEKNIK

Kampus I: Jl. Harsono RM No.67, Ragunan, Pasar Minggu, Jakarta Selatan 12550
Telepon: (021) 27808121 - 27808882
Kampus II: Jl. Raya Perjuangan, Marga Mulya, Bekasi Utara, Jawa Barat
Telepon: (021) 88955882 Fax.: (021) 88955871
Web: www.ubharajaya.ac.id/ft/. Email: ft@ubharajaya.ac.id

SURAT TUGAS

Nomor: ST/271/VI/2022/FT-UBJ

Pertimbangan : Bahwa dalam rangka Penelitian dan Pengabdian kepada Masyarakat Universitas Bhayangkara Jakarta Raya sebagai penunjang Tri Dharma Perguruan Tinggi di Universitas Bhayangkara Jakarta, maka untuk itu perlu dikeluarkan Surat Tugas.

Dasar : 1. Keputusan Mendiknas RI Nomor : 184/V/2001, tanggal 23 Nopember 2001, tentang Pedoman, Pengendalian dan Pembinaan Program Diploma, Sarjana dan Pascasarjana di Perguruan Tinggi.
2. Keputusan Dirjen Dikti Nomor : 034/Dikti/Kep/2002, tanggal 3 Juli 2002, tentang Perubahan dan Peraturan Tambahan Pedoman Pengawasan Pengendalian dan Pembinaan Program Diploma, Sarjana dan Pascasarjana di Perguruan Tinggi.
3. Rencana Kerja dan Anggaran Pembelanjaan Universitas Bhayangkara Jakarta Raya Tahun 2021/2022.

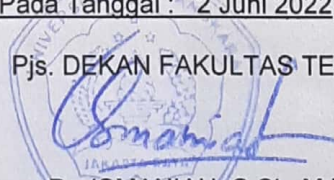
DITUGASKAN

No.	NAMA	NIDN
1.	Dr. Paduloh, S.T., M.T.	0312047602
2.	Rifki Muhendra, S.Si., M.Si.	0306108704
3.	Murwan Widyantoro, S.Pd., M.T.	0301048601

Untuk : 1. Bertugas untuk membuat artikel publikasi ilmiah dengan judul "Designing of temperature control for agitator machine using Internet of Thing" pada IOP Conference Series: Earth and Environmental Science 1063 (2022) 012053, Juni, 2022.
2. Melaporkan hasil pelaksanaan kegiatan tersebut secara tertulis kepada Dekan Fakultas Teknik Universitas Bhayangkara Jakarta Raya.
3. Melaksanakan perintah ini dengan penuh rasa tanggung jawab.

Dikeluarkan di : Bekasi
Pada Tanggal : 2 Juni 2022

Pjs. DEKAN FAKULTAS TEKNIK


Dr. ISMANIAH, S.Si., M.M.
NIP: 9604028

Paraf:

1. Ka. Prodi TID. /...

PAPER • OPEN ACCESS

Designing of temperature control for agitator machine using Internet of Thing

To cite this article: P Paduloh *et al* 2022 *IOP Conf. Ser.: Earth Environ. Sci.* **1063** 012053

View the [article online](#) for updates and enhancements.

You may also like

- [Synthesis and Photoluminescence Studies of Eu³⁺ Activated Borosilicate Phosphor \(Gd_{1-x}Eu_x\)₂BSi₂O₁₀ for White Light Emitting Diodes](#)
Tadashi Ishigaki, Puttaswamy Madhusudan, Michiyo Inoue et al.
- [The Limits of Transmittance of an Interface and Their Effects on Light Extraction](#)
K. C. Mishra and A. Piquette
- [A Review on How Lanthanide Impurity Levels Change with Chemistry and Structure of Inorganic Compounds](#)
Pieter Dorenbos

Designing of temperature control for agitator machine using Internet of Thing

P Paduloh^{*}, H Fatahillah, M A Ramadhan, R Muhendra, M Widyantoro and Sumanto

Industrial Engineering Program Study, Bhayangkara Jakarta Raya University, Bekasi, Indonesia

E-mail: paduloh@dsn.ubharajaya.ac.id

Abstract. Aristek Highpolymer is a company that produces emulsion polymers and synthetic resins. In the production process, the R301 agitator has often experienced overheating, which disrupted the production process and caused damage to the mixer engine motor. Currently, checking the temperature on the Agitator R301 has been done manually using a thermo-gun and often caused the information to be hampered and several times caused the stirrer motor to go off. For this reason, this study designed a tool that could facilitate checking and reporting if there was an increase in engine temperature. This tool utilized an information system using the concept of Web-Based Internet of Things (IoT). The information system was designed using UML, and the temperature reader was designed using Arduino Uno, Max6675 temperature sensor, and GSM SIM 800L module using the Fritzing application. Product design was done using QFD to get the design of the control device according to the customer's wishes. The research and experiments obtained a machine temperature controller that could provide information directly to decision-makers if an abnormal event occurred in the machine. It could also control the engine temperature so that it increased productivity and decreased maintenance costs for the agitator machine.

1. Introduction

Aristek Highpolymer is a company that produces emulsion polymers and synthetic resins for vehicle paints and car care. In the production process at Aristek Highpolymer, several times, there were disturbances in the form of overheating with temperature conditions exceeding 60°C on the R301 mixer machine. The impact of overheating can cause the production process to stop for 2 to 4 hours, and the worst thing can cause the agitator (mixing machine) to be damaged and must be replaced due to fire. The author observed the engine and then obtained overheating data on the R301 engine in the last five months. The author summarizes the findings in Figure 1 below.

From the data in Figure 1, it can be seen that the agitator temperature often exceeds the safety standard of 60 degrees Celsius. When the engine conditions reach that temperature, the engine must be turned off because it will cause it to go off and burn if forced to work. However, currently, in the production area, temperature checking is still done manually. They often miss the temperature conditions in the production area, so the engine motor is damaged and must be replaced several times.

* To whom any correspondence should be addressed.



In terms of safety, this condition is also hazardous because the product produced is a flammable chemical, so if a spark occurs, it can cause a bigger fire.

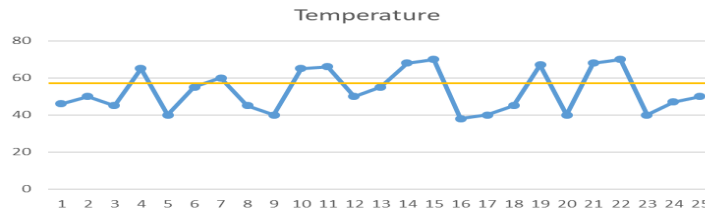


Figure 1. Data temperature in Agitator machine by observations.

Previous research on IoT implementation has been widely carried out, such as [1] making IoT applications for forensic activities, [2] Detecting Botnet Attacks in IoT Environment, [3] Smart Stadium using Cloud Computing and Internet of Things (IoT): Existing and New Models, [4] Intelligent service-integrated platform based on IOT technology using FCM and FQFD method, [5] Implementation of IoT Architecture for SMART HOME using GSM Technology but IoT research for implementation on agitator motors has not been done before. This research will be beneficial to increase the productivity of the company's production and prevent engine damage due to rising temperatures.

Based on these conditions, this research tries to design a tool that makes it easier for operators, staff, and decision-makers to receive temperature information efficiently to make decisions quickly. The state of the art research lies in product design, information system design, then implementing the product and conducting testing to determine the performance of the resulting product.

2. Methodology

The research method, which is an automatic system, is used to solve the problems. The following (Figure 2) is a process flow or an overview of the framework used in this research.

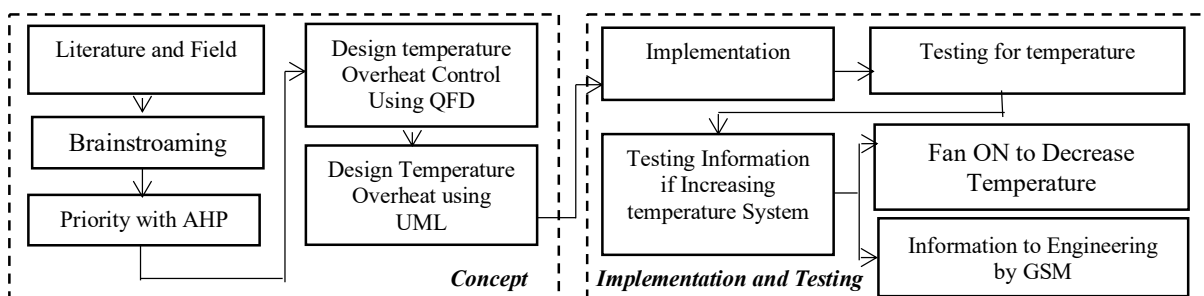


Figure 2. Research framework.

Based on the framework of thinking above, this research is divided into four major groups, namely 1). Problem analysis and data collection, at this stage, researchers conducted field observations to obtain information about problems in the R301 production machine at Aristek Highpolymer; the next step is to study the specifications of the R301 engine used in the production process. Information obtained from observations is that the agitator on the R301 machine can overheat and cause the engine to stop or not operate; another condition is the difficulty of knowing the real-time temperature of the R301 agitator stirrer. 2). The author planned the Agitator temperature information system tool using the Analysis Hierarchy Process (AHP), then made a list of questions to get VoC (Voice of Customer) from internal Aristek Highpolymer, which will be used as the basic criteria for designing information system tools. 3). This step is to create a product design using an information tool that can quickly notify if an overheating occurs using the UML method [6]. 4). The last stage is product implementation and product testing. At this stage, all components with program modules using the Arduino IDE (Integrated

Development Environment) are adjusted to read the R301 machine's temperature. Then the Arduino microcontroller is assembled with the GSM SIM800L module and inputs programming commands on the Arduino IDE, then the phone number to which the temperature notification will be sent via SMS. In this study, if the temperature information appears in graphs and numbers on the Thingspeak display and sends a hazard temperature notification via SMS, it means that product testing has been completed.

3. Result and Discussion

3.1 Priority decisions with AHP

The initial stages in this research are collecting data and doing brainstorming, which is carried out together with the head of engineering, managers, and machine operators. Based on the brainstorming results, it was found that the company needed a temperature control device on the Agitator 301 machine with specifications for light equipment weight, affordable prices, easy handling, easy installation, and electrostatic requirements. From these conditions, attributes are determined according to the company's needs and then analyzed with AHP [7]. AHP analysis uses Super decision software with three experts, namely the head of engineering, manager, and machine operator, and the AHP structure is as follows.

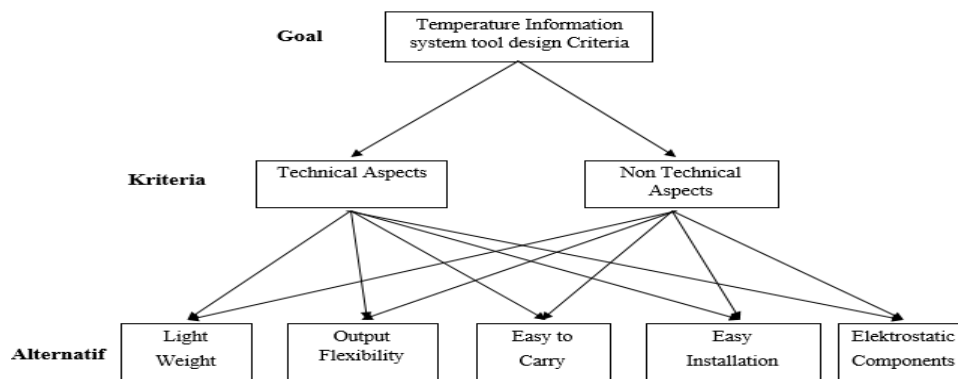


Figure 3. Structure of AHP.

Details of AHP data processing are found in this study with the Consistency Index value as in Table 1 below.

Table 1. Consistency Index Value.

Cluster	CI	N	RI	CR = CI / RI
Information System Tool Design Criteria	0.00000	2	0.00	0
Technical Aspect	0.07250	5	1.12	0.06473
Non-Technical Aspect	0.04567	5	1.12	0.04077

The table of consistency index values above shows that the experts' opinions for this study are consistent because the CI value is < 0.1 . Furthermore, the results of the AHP analysis are summarized in Table 2 below.

Table 2. Results of analysis using AHP.

Graphic	Alternatives	Total	Normal	Ideal	Rank
	Light Weight	0.0329	0.0658	0.1969	5
	Output flexibility	0.0803	0.1606	0.4806	4
	Electrostatic Components	0.1278	0.2555	0.7647	2
	Easy to carry	0.0920	0.1839	0.5503	3
	Easy Installation	0.1671	0.3342	1.0000	1

The table above shows that there are four attributes with the highest ranking. According to the expert, these attributes will be used as technical aspects related to the design of the agitator safety device in this study. The criteria selected above serve as the basis for the proposed temperature information system tool to maximize the Agitator working process and prevent overheating.

3.2 Design Model with QFD

After the researcher conducted the analysis using AHP, the four attributes were selected in QFD. Each of these attributes has a weighted value. This weighted value will determine the Importance Value, which helps know which features are most important to the customer. The following is a list of features, weight values, importance ratings. The correlation ratio in QFD shows a measure of R301's effort in improving the sensitivity of overheating if happens. The ratio value is obtained from the criteria of experts 1 Head Engineering Aristek Highpolymer, managers and machine operators R301.

Table 3. Results of the questionnaire on the importance of criteria.

Attribute	Voice Qty				
	STD	TD	D	LD	SD
Output flexibility		3	3	3	1
Easy to carry	1	2	2	1	4
Electrostatic Components	2	2	3	1	1
Easy Installation		2	3	4	1

The determination of the level of interest was obtained from the results of discussions with Aristek Highpolymer's management. Determination of the level of relative importance is carried out to determine how important each respondent's criteria are. Here is the formula for calculating the importance rating as follows [8]:

$$IR = \frac{\text{the number of respondents voted} \times \text{Interest Weight}}{\text{Number of Questionnaire}}$$

The following is an example of the calculation for the first attribute, which is lightweight and easy to carry:

1. STD : $1 \times 0 = 0$
2. TD : $2 \times 3 = 6$
3. D : $3 \times 2 = 6$
4. LD : $4 \times 1 = 4$
5. SD : $5 \times 4 = 20$

$$\text{Importance rating} = \frac{(0 + 6 + 9 + 12 + 5)}{10} = 3.2$$

After calculating the Importance rating for the first attribute, the author calculates the Importance rating for the second, third, and so on attributes. The results of these calculations are summarized in the following table.

Table 4. Summary of the calculation of the value of Importance Rating.

No.	Customer Needs	Importance Rating Value
1	Output flexibility	3.2
2	Easy to carry	3.5
3	Electrostatic components	2.4
4	Easy Installation	3.4

Based on the table, it shows that the attributes that have an importance rating or prioritized attributes to be realized in the temperature information system tool are based on the voices of the engineers of Aristek Highpolymer is an attribute that is easy to install and easy to carry, with an importance rating of 3.4 and 3.5.

Table 5. List of technical requirements.

NO	Customer Needs	Technical Needs
1	Output flexibility	Using wireless
2	Easy to carry	Case design
3	Electrostatic Components	Component design
4	Easy installation	Tool design

Relationship Matrix This matrix is useful for describing the relationship between customer requirements (customer requirements) and technical requirements (Technical requirements). The relationship is divided into four levels: no relationship, weak relationship, moderate relationship, and strong relationship. A weak or strong relationship will affect the product because it will be used in the design process. Then a table is made that contains the relationship between customer and technical needs so that the relationship between the two can be known. The relationship can be seen in the following table.

Table 6. Matrix of the relationship between customer demand and technical requirements.

Customer Needs	IR	Technical requirements			
		1	2	3	4
Output Flexibility	3.2	△		●	○
Easy to Carry	3.5		△	○	●
Electrostatic Components	2.4	○		△	●
Easy installation	3.4		△		○

Based on the table, it can be concluded that four relationships fall into the strong relationship category, as many as four relationships fall into the moderate relationship category, and three relationships fall into the weak relationship category. After doing and determining each relationship, the next author converts the symbol into a number to make it easier for the author to perform analysis and calculations. The following is a table of the conversion results of these relationship symbols.

This importance value corresponds to a predetermined technical need. Here is the formula used to determine the absolute importance value:

$$Kt = \sum (Bti \times Hi)$$

Information :

Kt : Value of absolute importance.

Bti : The weight of the value of the relative importance of the desires of consumers who have a relationship with attributes.

Hi : The value of the relationship of consumer desires with attributes.

The following is an example of calculating absolute importance for the attribute "Weight of constituent components".

$$Kt = \sum (3.2 \times 9) + (3.5 \times 0) + (2.4 \times 3) + (3.4 \times 0) = 36$$

The calculation of the absolute importance value is carried out for all technical requirements attributes. The following table contains a recapitulation of the calculation results for all technical requirements attributes.

Table 7. Results of absolute importance values.

No	Technical Needs	Absolute Importance Value
1	Using wireless	36
2	Case Design	62.1
3	Component design	35.5
4	Tool Design	25.7

Based on the table above, it can be concluded that the technical requirement that has the highest relative importance value is "Cases Design," and the lowest relative importance value is "Design of tools." The final step is to create a House of Quality Matrix with the above processing as a basis.

The following is the House of Quality matrix in the Temperature Information System Tool design[9]–[12].

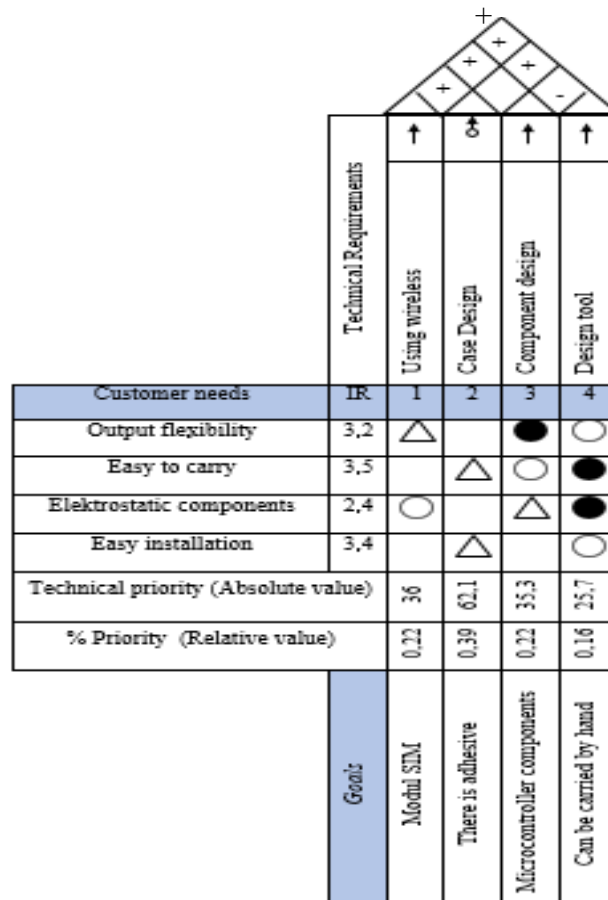


Figure 4. House of quality temperature information system tools.

3.3 Design system using UML

The system design is made using the Unified Modeling Language (UML) diagrams, including Use Case Diagrams, Sequence Diagrams, and Activity Diagrams[13].

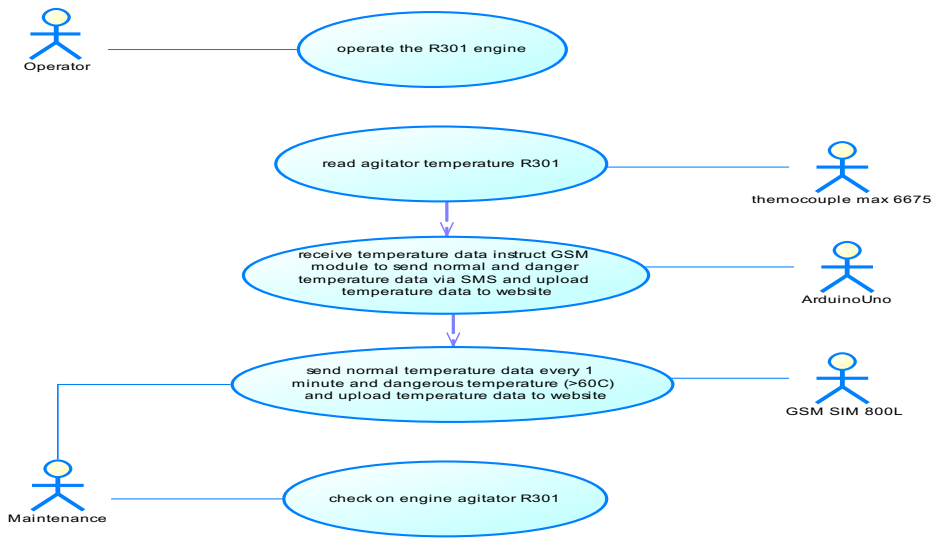


Figure 5. Use case diagram information system.

This section will explain the design of use case diagrams for monitoring applications and monitoring systems. Moreover, this section also explains how the tool works when the machine is at a dangerous temperature, the tool will send SMS notifications, at normal temperatures, the tool will send temperature data via SMS with a time frame of every 1 minute, and the tool will upload temperature data to the Thingspeak website.

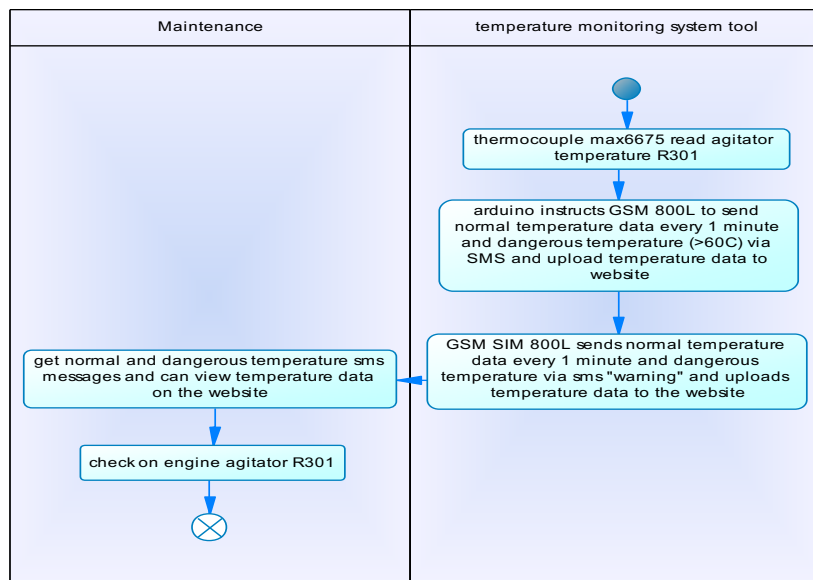


Figure 6. Activity Diagram

Activity diagrams will tell how the workflow of this information system tool and how users can receive information from this information system tool.

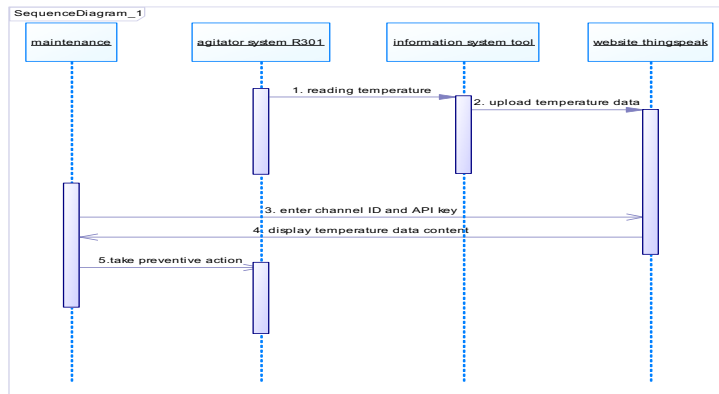


Figure 7. Sequence Diagram Information System

The sequence diagram in this section shows the interactions needed to see the display of temperature data information that he wants to see on the monitoring website. Figure 7 above shows that the existing system, namely the agitator system, is not disturbed by the presence of a new system or a system on the agitator temperature monitoring information system tool.

3.4 Design Product

The next process is designing a series of tools by connecting the Arduino parts, the Max6675 temperature sensor, and the GSM SIM 800L module using the freezing application. The following is a schematic of the Arduino port and pin circuit, the Max6675 sensor, and the 800L GSM SIM module:

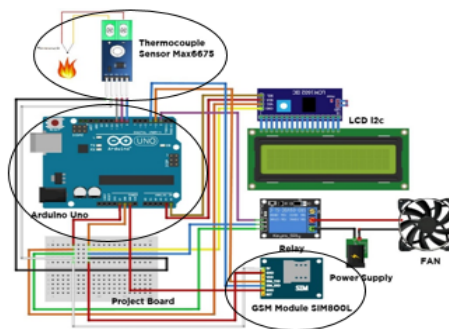


Figure 8. Device Component Circuit Design

Based on Figure 8, the connection to the Arduino Uno microcontroller port can be seen in the two tables below.

Table 8. Arduino Port Connection with Sensor pin Max6675

Arduino	Sensor Max6675
GND	GND
5V	VCC
10	SCK
9	CS
8	SO

Table 9. Arduino Port Connection with GSM SIM pin 800L pin

Arduino	Modul GSM SIM 800L
5V	5V
GND	GND
3	SIM_TXD
4	SIM_RXD
GND	GND

The following is the Actual circuit that has been adjusted between the Arduino Uno, Thermocouple, and GSM SIM 800L ports:

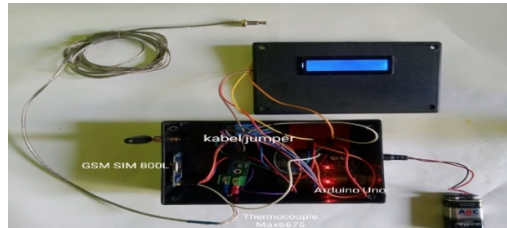


Figure 9. Actual Tool Component Circuit

After the components of each tool have been installed, the next step is testing the software or program where programming is significant in a system to make it fit as desired. Tools made using the Arduino Uno microcontroller require a program in the C language.

```
#include "max6675.h"
#include <LiquidCrystal_I2C.h>
#include <SoftwareSerial.h>
#include <String.h>
#define SIM800_TX_PIN 3
#define SIM800_RX_PIN 4

SoftwareSerial serialSIM800(SIM800_TX_PIN, SIM800_RX_PIN);
String Write_API_key = "666RB056YQXKETWC"; // Thingspeak Write API Key
String apn = "3gprs";

int ktcSO = 8;
int ktcCS = 9;
int ktcCLK = 10;
float data;
float data1;
MAX6675 ktc(ktcCLK, ktcCS, ktcSO);
LiquidCrystal_I2C lcd(0x27, 20, 4);

void setup() {
  lcd.init();
  lcd.backlight();
  lcd.setCursor(0, 0);
  lcd.print("Temperature R301");
  lcd.write(0);
  Serial.begin(9600);
  pinMode(2, OUTPUT);
  while(!Serial);
}

data1 = ktc.readCelsius();
Serial.begin(9600);
while(!Serial);
}

void loop() {
  SetupModule();
```

Figure 10. Arduino Program.

After the Arduino program process is complete, the program is uploaded to the Arduino Uno.

3.5 Program Test Results

After the program is uploaded to the Arduino microcontroller, it is checked that it is running as desired on the serial monitor. In a system design where sending SMS and uploading temperature data to the website via a GSM SIM 800L module that has been installed with a phone card (GSM SIM card) that has been filled with credit and has internet data.

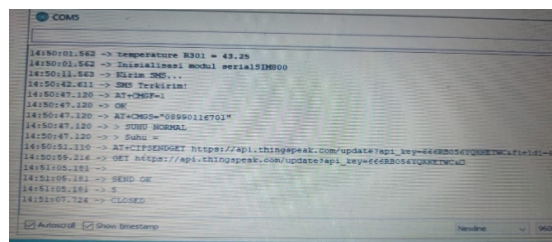


Figure 11. Control information in the monitor.

In Figure 11, a description of sending an SMS is displayed, and after that, it displays a description of the SMS sent. Based on Figure 11, it can also be seen that the sending of temperature data to the Thingspeak channel website has been successful with a statement on the serial monitor that says SEND OK.

From the results of the application, it is known that the tool made can measure temperature precisely, and this can be seen in the table below.

Table 10. Test results of the direct tool and machine thermo-gun R301.

No	Thermogun Temperature (°C)	Tool temperature (°C)	Testing Time
1	34.75	35.50	10:28
2	34.10	34.50	10:29
3	33.75	34.75	10:31
4	36.25	36.25	10:33
5	29.85	30.00	11:34
6	28.10	29.25	11:35
7	29.00	29.75	11:41
8	33.60	29.50	11:45
9	28.20	30.25	13:49
10	29.10	29.25	11:58

The test is carried out by placing the designed tool on the R301 agitator machine. Then, the test results' temperature is compared with a thermo-gun. The test results obtained the difference in the average temperature value of about 1 °C - 2.5 °C between the tools made with the thermo-gun. The application results show that the temperature rise information can be known more quickly and accurately so that the problem of engine damage due to the increase in engine temperature on the agitator can be well controlled.

4. Conclusion

The design of the temperature control device on the R301 agitator to prevent overheating using QFD and UML by applying the Arduino Uno, Max6675, and GSM SIM 800L temperature sensors using the Frinzing application can produce a temperature measuring device that can provide information quickly. This tool will notify if the engine temperature exceeds the maximum limit, above 60°C. In addition to providing reports on these conditions, this tool can also turn on the fan used to reduce heat in the motor of the mixer machine so that this tool significantly reduces the risk of loss due to engine failure and engine damage. This research provides an opportunity for further research on the R301 engine in the form of a viscosity controller, pressure gauge, and overall engine redesign by paying attention to sensor-based occupational safety and health to prevent losses due to fire and work accidents.

5. References

- [1] Stoyanova M, Nikoloudakis Y, Panagiotakis S, Pallis E and Markakis E K 2020 A Survey on the Internet of Things (IoT) forensics: Challenges, approaches, and open Issues *IEEE Commun. Surv. Tutorials* **22** 1191–1221
- [2] Injadat M N, Moubayed A and Shami A 2020 Detecting botnet attacks in IoT environments: An optimized machine learning approach *Proc. Int. Conf. Microelectron. ICM 2020-Decem*
- [3] Mahdi M J, Aljuboori A F and Hussein A M 2021 Smart stadium using cloud computing and Internet of Things (IoT): Existing and new models *Int. J. Comput. Appl. Technol. Res.* **10** 111–118
- [4] Chen R Y 2013 Intelligent service-integrated platform based on IOT technology using FCM and FQFD method *2013 IEEE 6th Int. Conf. Adv. Infocomm Technol. ICAIT 2013* 151–152
- [5] Ganesh E N 2017 Implementation of IoT architecture for smart home using GSM technology *Int. J. Comput. Tech.* **4** 42–48
- [6] Poongodi T, Rathee A, Indrakumari R and Suresh P 2019 *IoT sensing capabilities: Sensor deployment and node discovery, wearable sensors, wireless body area network (WBAN), data acquisition* **174**
- [7] Taha H A 2017 *Operation Research an Introduction* Tenth Edit Pearson
- [8] Deepu T S and Ravi V 2020 An integrated ANP–QFD approach for prioritization of customer and design requirements for digitalization in an electronic supply chain *Benchmarking*
- [9] Huang A, Cao J and Zhang H 2020 Construction of patient service system based on QFD in internet of things *J. Supercomput.* 0123456789
- [10] Ahmadzadeh A, Sheikh A A, Shahin A and Teimouri H 2020 Developing a QFD model for prioritizing the CSFs of ERP based on the enablers of organizational agility *Benchmarking*

2008.

- [11] Tseng F M *et al.* 2018 Integrating Service QFD and TRIZ for a lucky draw system design: The case study *Proc. - 2017 IEEE 7th Int. Symp. Cloud Serv. Comput. SC2 2017* **2018-January** 189–193
- [12] Li F, Chen C H, Lee C H and Khoo L P 2020 A user requirement-driven approach incorporating TRIZ and QFD for designing a smart vessel alarm system to reduce alarm fatigue *J. Navig.* **73** 212–232
- [13] Aloui A and Grissa A 2015 *Computational Intelligence Applications in Modeling and Control* **575**

Designing of temperature control for agitator machine using Internet of Thing

by Cek Turnitin

Submission date: 13-Apr-2023 12:38PM (UTC+0800)

Submission ID: 2063201410

File name: Paduloh_2022_IOP_Conf._Ser._Earth_Environ._Sci._1063_012053.pdf (1,014.55K)

Word count: 4003

Character count: 20715

PAPER • OPEN ACCESS

Designing of temperature control for agitator machine using Internet of Thing

5

12

To cite this article: P Paduloh *et al* 2022 *IOP Conf. Ser.: Earth Environ. Sci.* **1063** 012053

View the [article online](#) for updates and enhancements.

You may also like

- 4 - [Numerical simulation of acoustic field](#)
- 5 - [Her mechanical stirring](#)
Jin-He Liu, , Zhuang-Zhi Shen et al.
- [Design and performance test of biodiesel reactor using helical screw agitator and baffles](#)
D Wulandani and Z A Ibrahim
- 3 - [Study on the aggregate motion for gas-liquid-solid agitated tank reactors](#)
- 13 - [on using radioactive particle tracking](#)
Gabriel Salgado, Mauricio Maestri, Maria Sol Fraguio et al.



244th Electrochemical Society Meeting

October 8 – 12, 2023 • Gothenburg, Sweden

50 symposia in electrochemistry & solid state science

▶ Deadline Extended!
Last chance to submit!

New deadline:
April 21
submit your abstract!

Designing of temperature control for agitator machine using Internet of Thing

P Paduloh*, H Fatahillah, M A Ramadhan, R Muhendra, M Widyantoro and Sumanto

Industrial Engineering Program Study, Bhayangkara Jakarta Raya University, Bekasi, Indonesia

E-mail: paduloh@dsn.ubharajaya.ac.id

Abstract. Aristek Highpolymer is a company that produces emulsion polymers and synthetic resins. In the production process, the R301 agitator has often experienced overheating, which disrupted the production process and caused damage to the mixer engine motor. Currently, checking the temperature on the Agitator R301 has been done manually using a thermo-gun and often caused the information to be hampered and several times caused the stirrer motor to go off. For this reason, this study designed a tool that could facilitate checking and reporting if there was an increase in engine temperature. This tool utilized an information system using the concept of Web-Based Internet of Things (IoT). The information system was designed using UML, and the temperature reader was designed using Arduino Uno, Max6675 temperature sensor, and GSM SIM 800L module using the Fritzing application. Product design was done using QFD to get the design of the control device according to the customer's wishes. The research and experiments obtained a machine temperature controller that could provide information directly to decision-makers if an abnormal event occurred in the machine. It could also control the engine temperature so that it increased productivity and decreased maintenance costs for the agitator machine.

1. Introduction

Aristek Highpolymer is a company that produces emulsion polymers and synthetic resins for vehicle paints and car care. In the production process at Aristek Highpolymer, several times, there were disturbances in the form of overheating with temperature conditions exceeding 60°C on the R301 mixer machine. The impact of overheating can cause the production process to stop for 2 to 4 hours, and the worst thing can cause the agitator (mixing machine) to be damaged and must be replaced due to fire. The author observed the engine and then obtained overheating data on the R301 engine in the last five months. The author summarizes the findings in Figure 1 below.

From the data in Figure 1, it can be seen that the agitator temperature often exceeds the safety standard of 60 degrees Celsius. When the engine conditions reach that temperature, the engine must be turned off because it will cause it to go off and burn if forced to work. However, currently, in the production area, temperature checking is still done manually. They often miss the temperature conditions in the production area, so the engine motor is damaged and must be replaced several times.

2

* To whom any correspondence should be addressed.



Content from this work may be used under the terms of the Creative Commons Attribution 3.0 licence. Any further distribution of this work must maintain attribution to the author(s) and the title of the work, journal citation and DOI.

In terms of safety, this condition is also hazardous because the product produced is a flammable chemical, so if a spark occurs, it can cause a bigger fire.

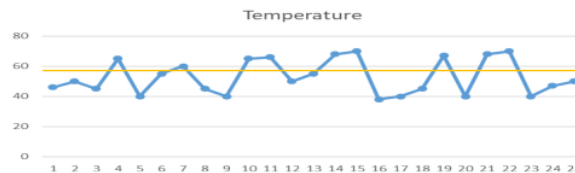


Figure 1. Data temperature in Agitator machine by observations.

Previous research on IoT implementation has been widely carried out, such as [1] making IoT applications for forensic activities, [2] Detecting Botnet Attacks in IoT Environment, [6] Smart Stadium using Cloud Computing and Internet of Things (IoT): Existing and New Models, [4] Intelligent service-integrated platform based on IOT technology using FCM and FQFD method, [5] Implementation of IoT Architecture for SMART HOME using GSM Technology but IoT research for implementation on agitator motors has not been done before. This research will be beneficial to increase the productivity of the company's production and prevent engine damage due to rising temperatures.

Based on these conditions, this research tries to design a tool that makes it easier for operators, staff, and decision-makers to receive temperature information efficiently to make decisions quickly. The state of the art research lies in product design, information system design, then implementing the product and conducting testing to determine the performance of the resulting product.

2. Methodology

The research method, which is an automatic system, is used to solve the problems. The following (Figure 2) is a process flow or an overview of the framework used in this research.

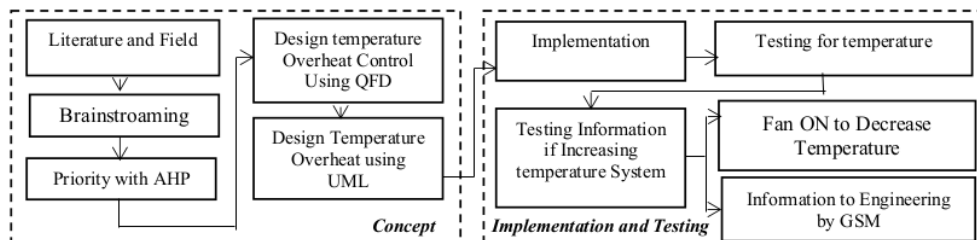


Figure 2. Research framework.

Based on the framework of thinking above, this research is divided into four major groups, namely 1). Problem analysis and data collection, at this stage, researchers conducted field observations to obtain information about problems in the R301 production machine at Aristek Highpolymer; the next step is to study the specifications of the R301 engine used in the production process. Information obtained from observations is that the agitator on the R301 machine can overheat and cause the engine to stop or not operate; another condition is the difficulty of knowing the real-time temperature of the R301 agitator stirrer. 2). The author planned the Agitator temperature information system tool using the Analysis Hierarchy Process (AHP), then made a list of questions to get VoC (Voice of Customer) from internal Aristek Highpolymer, which will be used as the basic criteria for designing information system tools. 3). This step is to create a product design using an information tool that can quickly notify if an overheating occurs using the UML method [6]. 4). The last stage is product implementation and product testing. At this stage, all components with program modules using the Arduino IDE (Integrated

Development Environment) are adjusted to read the R301 machine's temperature. Then the Arduino microcontroller is assembled with the GSM SIM800L module and inputs programming commands on the Arduino IDE, then the phone number to which the temperature notification will be sent via SMS. In this study, if the temperature information appears in graphs and numbers on the Thingspeak display and sends a hazard temperature notification via SMS, it means that product testing has been completed.

3. Result and Discussion

3.1 Priority decisions with AHP

The initial stages in this research are collecting data and doing brainstorming, which is carried out together with the head of engineering, managers, and machine operators. Based on the brainstorming results, it was found that the company needed a temperature control device on the Agitator 301 machine with specifications for light equipment weight, affordable prices, easy handling, easy installation, and electrostatic requirements. From these conditions, attributes are determined according to the company's needs and then analyzed with AHP [7]. AHP analysis uses Super decision software with three experts, namely the head of engineering, manager, and machine operator, and the AHP structure is as follows.

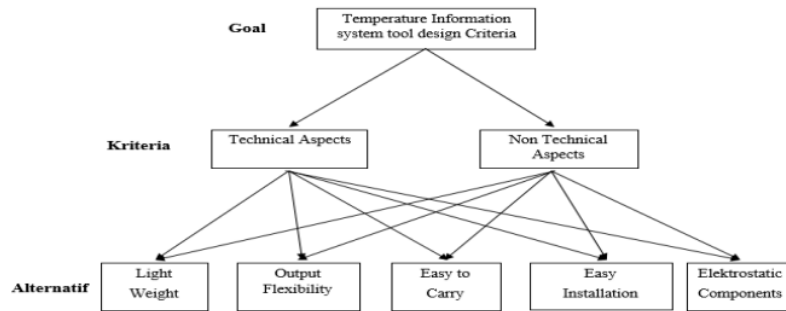


Figure 3. Structure of AHP.

Details of AHP data processing are found in this study with the Consistency Index value as in Table 1 below.

Table 1. Consistency Index Value.

Cluster	CI	N	RI	CR = CI / RI
Information System Tool Design Criteria	0.00000	2	0.00	0
Technical Aspect	0.07250	5	1.12	0.06473
Non-Technical Aspect	0.04567	5	1.12	0.04077

The table of consistency index values above shows that the experts' opinions for this study are consistent because the CI value is < 0.1. Furthermore, the results of the AHP analysis are summarized in Table 2 below.

Table 2. Results of analysis using AHP.

Graphic	Alternatives	Total	Normal	Ideal	Rank
█	Light Weight	0.0329	0.0658	0.1969	5
█	Output flexibility	0.0803	0.1606	0.4806	4
█	Electrostatic Components	0.1278	0.2555	0.7647	2
█	Easy to carry	0.0920	0.1839	0.5503	3
█	Easy Installation	0.1671	0.3342	1.0000	1

The table above shows that there are four attributes with the highest ranking. According to the expert, these attributes will be used as technical aspects related to the design of the agitator safety device in this study. The criteria selected above serve as the basis for the proposed temperature information system tool to maximize the Agitator working process and prevent overheating.

3.2 Design Model with QFD

After the researcher conducted the analysis using AHP, the four attributes were selected in QFD. Each of these attributes has a weighted value. This weighted value will determine the Importance Value, which helps know which features are most important to the customer. The following is a list of features, weight values, importance ratings. The correlation ratio in QFD shows a measure of R301's effort in improving the sensitivity of overheating if happens. The ratio value is obtained from the criteria of experts 1 Head Engineering Aristek Highpolymer, managers and machine operators R301.

Table 3. Results of the questionnaire on the importance of criteria.

Attribute	Voice Qty				
	STD	TD	D	LD	SD
Output flexibility		3	3	3	1
Easy to carry	1	2	2	1	4
Electrostatic Components	2	2	3	1	1
Easy Installation		2	3	4	1

The determination of the level of interest was obtained from the results of discussions with Aristek Highpolymer's management. Determination of the level of relative importance is carried out to determine how important each respondent's criteria are. Here is the formula for calculating the importance rating as follows [8]:

$$IR = \frac{\text{the number of respondents voted} \times \text{Interest Weight}}{\text{Number of Questionnaire}}$$

The following is an example of the calculation for the first attribute, which is lightweight and easy to carry:

1. STD : $1 \times 0 = 0$
2. TD : $2 \times 3 = 6$
3. D : $3 \times 2 = 6$
4. LD : $4 \times 1 = 4$
5. SD : $5 \times 4 = 20$

$$\text{Importance rating} = \frac{(0 + 6 + 9 + 12 + 5)}{10} = 3.2$$

After calculating the Importance rating for the first attribute, the author calculates the Importance rating for the second, third, and so on attributes. The results of these calculations are summarized in the following table.

Table 4. Summary of the calculation of the value of Importance Rating.

No.	Customer Needs	Importance Rating Value
1	Output flexibility	3.2
2	Easy to carry	3.5
3	Electrostatic components	2.4
4	Easy Installation	3.4

Based on the table, it shows that the attributes that have an importance rating or prioritized attributes to be realized in the temperature information system tool are based on the voices of the engineers of Aristek Highpolymer is an attribute that is easy to install and easy to carry, with an importance rating of 3.4 and 3.5.

Table 5. List of technical requirements.

NO	Customer Needs	Technical Needs
1	Output flexibility	Using wireless
2	Easy to carry	Case design
3	Electrostatic Components	Component design
4	Easy installation	Tool design

Relationship Matrix This matrix is useful for describing the relationship between customer requirements (customer requirements) and technical requirements (Technical requirements). The relationship is divided into four levels: no relationship, weak relationship, moderate relationship, and strong relationship. A weak or strong relationship will affect the product because it will be used in the design process. Then a table is made that contains the relationship between customer and technical needs so that the relationship between the two can be known. The relationship can be seen in the following table.

Table 6. Matrix of the relationship between customer demand and technical requirements.

Customer Needs	IR	Technical requirements			
		1	2	3	4
Output Flexibility	3.2	△		●	○
Easy to Carry	3.5		△	○	●
Electrostatic Components	2.4	○		△	●
Easy installation	3.4		△		○

Based on the table, it can be concluded that four relationships fall into the strong relationship category, as many as four relationships fall into the moderate relationship category, and three relationships fall into the weak relationship category. After doing and determining each relationship, the next author converts the symbol into a number to make it easier for the author to perform analysis and calculations. The following is a table of the conversion results of these relationship symbols.

This importance value corresponds to a predetermined technical need. Here is the formula used to determine the absolute importance value:

$$Kt = \sum (Bti \times Hi)$$

Information :

Kt : Value of absolute importance.

Bti : The weight of the value of the relative importance of the desires of consumers who have a relationship with attributes.

Hi : The value of the relationship of consumer desires with attributes.

The following is an example of calculating absolute importance for the attribute “Weight of constituent components”.

$$Kt = \sum (3.2 \times 9) + (3.5 \times 0) + (2.4 \times 3) + (3.4 \times 0) = 36$$

The calculation of the absolute importance value is carried out for all technical requirements attributes. The following table contains a recapitulation of the calculation results for all technical requirements attributes.

Table 7. Results of absolute importance values.

No	Technical Needs	Absolute Importance Value
1	Using wireless	36
2	Case Design	62.1
3	Component design	35.5
4	Tool Design	25.7

Based on the table above, it can be concluded that the technical requirement that has the highest relative importance value is "Cases Design," and the lowest relative importance value is "Design of tools." The final step is to create a House of Quality Matrix with the above processing as a basis.

The following is the House of Quality matrix in the Temperature Information System Tool design[9]-[12].

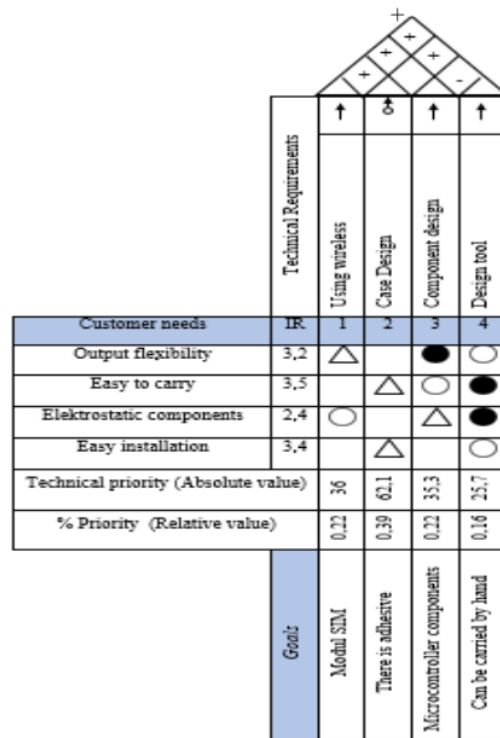


Figure 4. House of quality temperature information system tools.

3.3 Design system using UML

8

The system design is made using the Unified Modeling Language (UML) diagrams, including Use Case Diagrams, Sequence Diagrams, and Activity Diagrams[13].

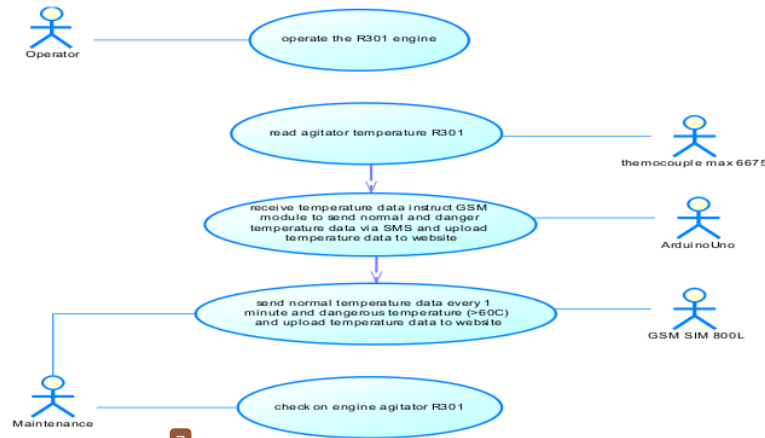


Figure 5. Use case diagram information system.

This section will explain the design of use case diagrams for monitoring applications and monitoring systems. Moreover, this section also explains how the tool works when the machine is at a dangerous temperature, the tool will send SMS notifications, at normal temperatures, the tool will send temperature data via SMS with a time frame of every 1 minute, and the tool will upload temperature data to the Thingspeak website.

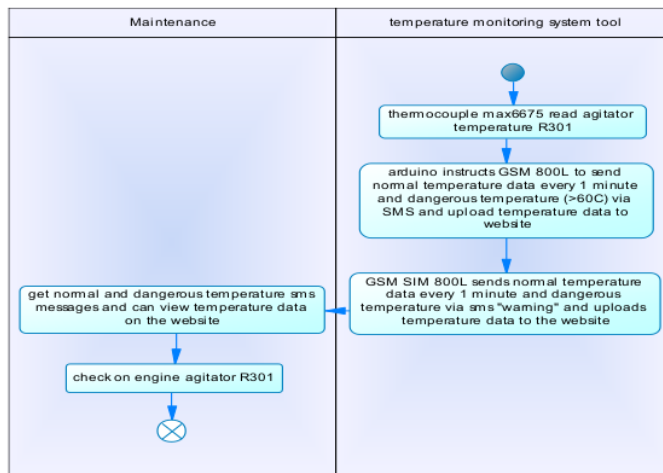


Figure 6. Activity Diagram

Activity diagrams will tell how the workflow of this information system tool and how users can receive information from this information system tool.

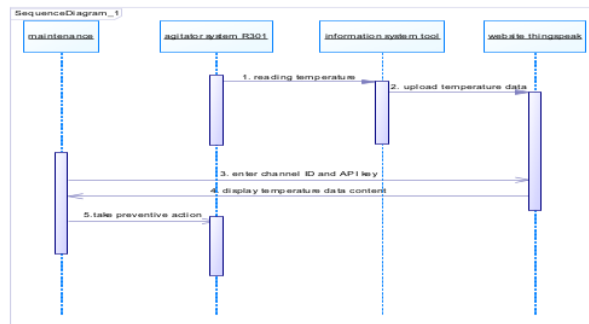


Figure 7. Sequence Diagram Information System

The sequence diagram in this section shows the interactions needed to see the display of temperature data information that he wants to see on the monitoring website. Figure 7 above shows that the existing system, namely the agitator system, is not disturbed by the presence of a new system or a system on the agitator temperature monitoring information system tool.

3.4 Design Product

The next process is designing a series of tools by connecting the Arduino parts, the Max6675 temperature sensor, and the GSM SIM 800L module using the freezing application. The following is a schematic of the Arduino port and pin circuit, the Max6675 sensor, and the 800L GSM SIM module:

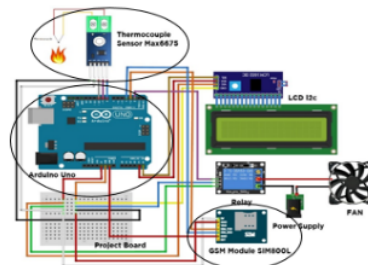


Figure 8. Device Component Circuit Design

Based on Figure 8, the connection to the Arduino Uno microcontroller port can be seen in the two tables below.

Table 8. Arduino Port Connection with Sensor pin Max6675

Arduino	Sensor Max6675
GND	GND
5V	VCC
10	SCK
9	CS
8	SO

Table 9. Arduino Port Connection with GSM SIM pin 800L pin

Arduino	Modul GSM SIM 800L
5V	5V
GND	GND
3	SIM_TXD
4	SIM_RXD
GND	GND

The following is the Actual circuit that has been adjusted between the Arduino Uno, Thermocouple, and GSM SIM 800L ports:

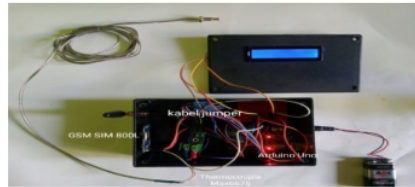


Figure 9. Actual Tool Component Circuit

After the components of each tool have been installed, the next step is testing the software or program where programming is significant in a system to make it fit as desired. Tools made using the Arduino Uno microcontroller require a program in the C language.

```
#include "max6675.h"
#include <LiquidCrystal_I2C.h>
#include <SoftwareSerial.h>
#include <String.h>
#define SD_B00_TX_PIN 3
#define SD_B00_RX_PIN 4

SoftwareSerial serial(SD_B00_TX_PIN,SD_B00_RX_PIN);
String Write_API_Key = "6668B05YQURKETWC"; // Thingspeak Write API Key
String apn = "jgprs";

int ledSO = 8;
int ledCS = 9;
int ledCLK = 10;
float data;
MAX6675 tsc(ledCLK, ledCS, ledSO);
LiquidCrystal_I2C lcd(0x27,16,4);

void setup() {
  lcd.init();
  lcd.backlight();
  lcd.setCursor(0,0);
  lcd.print("Temperature R301");
  lcd.write();
  Serial.begin(9600);
  pinMode(LED_OUTPUT);
  while(!Serial);

  data = tsc.readCelsius();
  Serial.begin(9600);
  while(!Serial);
}

void loop() {
  SetupModule();
```

Figure 10. Arduino Program.

After the Arduino program process is complete, the program is uploaded to the Arduino Uno.

3.5 Program Test Results

After the program is uploaded to the Arduino microcontroller, it is checked that it is running as desired on the serial monitor. In a system design where sending SMS and uploading temperature data to the website via a GSM SIM 800L module that has been installed with a phone card (GSM SIM card) that has been filled with credit and has internet data.

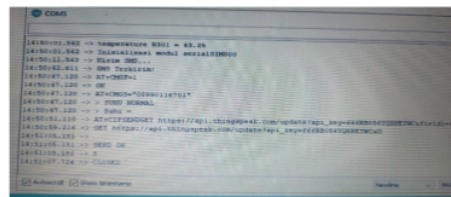


Figure 11. Control information in the monitor.

In Figure 11, a description of sending an SMS is displayed, and after that, it displays a description of the SMS sent. Based on Figure 11, it can also be seen that the sending of temperature data to the Thingspeak channel website has been successful with a statement on the serial monitor that says SEND OK.

From the results of the application, it is known that the tool made can measure temperature precisely, and this can be seen in the table below.

Table 10. Test results of the direct tool and machine thermo-gun R301.

No	Thermogun Temperature (°C)	Tool temperature (°C)	Testing Time
1	34.75	35.50	10:28
2	34.10	34.50	10:29
3	33.75	34.75	10:31
4	36.25	36.25	10:33
5	29.85	30.00	11:34
6	28.10	29.25	11:35
7	29.00	29.75	11:41
8	33.60	29.50	11:45
9	28.20	30.25	13:49
10	29.10	29.25	11:58

The test is carried out by placing the designed tool on the R301 agitator machine. Then, the test results' temperature is compared with a thermo-gun. The test results obtained the difference in the average temperature value of about 1 °C - 2.5 °C between the tools made with the thermo-gun. The application results show that the temperature rise information can be known more quickly and accurately so that the problem of engine damage due to the increase in engine temperature on the agitator can be well controlled.

4. Conclusion

The design of the temperature control device on the R301 agitator to prevent overheating using QFD and UML by applying the Arduino Uno, Max6675, and GSM SIM 800L temperature sensors using the Frinzing application can produce a temperature measuring device that can provide information quickly. This tool will notify if the engine temperature exceeds the maximum limit, above 60°C. In addition to providing reports on these conditions, this tool can also turn on the fan used to reduce heat in the motor of the mixer machine so that this tool significantly reduces the risk of loss due to engine failure and engine damage. This research provides an opportunity for further research on the R301 engine in the form of a viscosity controller, pressure gauge, and overall engine redesign by paying attention to sensor-based occupational safety and health to prevent losses due to fire and work accidents.

5. References

- [1] Stoyanova M, Nikoloudakis Y, Panagiotakis S, Pallis E and Markakis E K 2020 A Survey on the Internet of Things (IoT) forensics: Challenges, approaches, and open Issues *IEEE Commun. Surv. Tutorials* **22** 1191–1221
- [2] Injadat M N, Moubayed A and Shami A 2020 Detecting botnet attacks in IoT environments: An optimized machine learning approach *Proc. Int. Conf. Microelectron. ICM 2020-Decem*
- [3] Mahdi M J, Aljuboori A F and Hussein A M 2021 Smart stadium using cloud computing and Internet of Things (IoT): Existing and new models *Int. J. Comput. Appl. Technol. Res.* **10** 111–118
- [4] Chen R Y 2013 Intelligent service-integrated platform based on IOT technology using FCM and FQFD method *2013 IEEE 6th Int. Conf. Adv. Infocomm Technol. ICAIT 2013* 151–152
- [5] Ganesh E N 2017 Implementation of IoT architecture for smart home using GSM technology *Int. J. Comput. Tech.* **4** 42–48
- [6] Poongodi T, Rathee A, Indrakumari R and Suresh P 2019 *IoT sensing capabilities: Sensor deployment and node discovery, wearable sensors, wireless body area network (WBAN), data acquisition* **174**
- [7] Taha H A 2017 *Operation Research an Introduction* Tenth Edit Pearson
- [8] Deepu T S and Ravi V 2020 An integrated ANP–QFD approach for prioritization of customer and design requirements for digitalization in an electronic supply chain *Benchmarking*
- [9] Huang A, Cao J and Zhang H 2020 Construction of patient service system based on QFD in internet of things *J. Supercomput.* 0123456789
- [10] Ahmadzadeh A, Sheikh A A, Shahin A and Teimouri H 2020 Developing a QFD model for prioritizing the CSFs of ERP based on the enablers of organizational agility *Benchmarking*

- 2008.
- [11] Tseng F M *et al.* 2018 Integrating Service QFD and TRIZ for a lucky draw system design: The case study *Proc. - 2017 IEEE 7th Int. Symp. Cloud Serv. Comput. SC2 2017* **2018-January** 189–193
- [12] Li F, Chen C H, Lee C H and Khoo L P 2020 A user requirement-driven approach incorporating TRIZ and QFD for designing a smart vessel alarm system to reduce alarm fatigue *J. Navig.* **73** 212–232
- [13] Aloui A and Grissa A 2015 *Computational Intelligence Applications in Modeling and Control* **575**

Designing of temperature control for agitator machine using Internet of Thing

ORIGINALITY REPORT

7%

SIMILARITY INDEX

4%

INTERNET SOURCES

5%

PUBLICATIONS

1%

STUDENT PAPERS

PRIMARY SOURCES

- 1 Yaoguo Wu, Mengying Yi, Bo Zhou, Zhiyuan Liang, Ran Sun, Sihai Hu, Qian Guo, zhaohui Meng, Erfan ye. "Batch and column tests study on coexistence of TNT and aniline enhancing their Transports in Chinese loess", Research Square Platform LLC, 2022
Publication 2%
- 2 pure.iiasa.ac.at
Internet Source 1%
- 3 www.researchgate.net
Internet Source <1%
- 4 Takumi Chikaarashi, Shunya Watanabe, Yoshitaka Miyamoto, Daiki Omata, Kazuo Maruyama, Ryo Suzuki, Kohji Masuda. "Experimental study of ultrasound retention of bubble-surrounded cells under various conditions of acoustic field and flow velocity", Japanese Journal of Applied Physics, 2022
Publication <1%

5	Katsuo Kitsu, Yasunori Ikeno, Takenobu Tsuchiya, Nobuyuki Endoh Natori. "Optical Measurement System of Sound Pressure with Refracted Laser Light Propagated through an Acoustic Field", Japanese Journal of Applied Physics, 1997 Publication	<1 %
6	dblp.dagstuhl.de Internet Source	<1 %
7	injoit.org Internet Source	<1 %
8	www.velvetjobs.com Internet Source	<1 %
9	link.springer.com Internet Source	<1 %
10	businessdocbox.com Internet Source	<1 %
11	www.inderscience.com Internet Source	<1 %
12	drive.google.com Internet Source	<1 %
13	Jamal Chaouki, Faiçal Larachi, Milorad P. Duduković. "Noninvasive Tomographic and Velocimetric Monitoring of Multiphase Flows",	<1 %

Industrial & Engineering Chemistry Research, 1997

Publication

14

Lee, Chen, Lin, Li, Zhao. "Developing a Quick Response Product Configuration System under Industry 4.0 Based on Customer Requirement Modelling and Optimization Method", Applied Sciences, 2019

Publication

<1 %

15

Neil Aldrin, Kuncono Teguh Yunanto. "Job Satisfaction as a Mediator for the Influence of Transformational Leadership and Organizational Culture on Organizational Citizenship Behavior", The Open Psychology Journal, 2019

Publication

<1 %

Exclude quotes On

Exclude matches Off

Exclude bibliography On



Source details

AIP Conference Proceedings

Scopus coverage years: from 1973 to 1978, from 1983 to 1984, 1993, from 2000 to 2001, from 2003 to Present

ISSN: 0094-243X E-ISSN: 1551-7616

Subject area: Physics and Astronomy: General Physics and Astronomy

Source type: Conference Proceeding

[View all documents >](#)

[Set document alert](#)

[Save to source list](#)

CiteScore 2022

0.7



SJR 2022

0.164



SNIP 2022

0.247



[CiteScore](#) [CiteScore rank & trend](#) [Scopus content coverage](#)

i Improved CiteScore methodology



CiteScore 2022 counts the citations received in 2019-2022 to articles, reviews, conference papers, book chapters and data papers published in 2019-2022, and divides this by the number of publications published in 2019-2022. [Learn more >](#)

CiteScore 2022 ▼

$$0.7 = \frac{31.947 \text{ Citations 2019 - 2022}}{43.416 \text{ Documents 2019 - 2022}}$$

Calculated on 05 May, 2023

CiteScoreTracker 2023 ⓘ

$$0.5 = \frac{19.544 \text{ Citations to date}}{41.650 \text{ Documents to date}}$$

Last updated on 05 August, 2023 • Updated monthly

CiteScore rank 2022 ⓘ

Category	Rank	Percentile
Physics and Astronomy		
General Physics and Astronomy	#203/240	15th

[View CiteScore methodology >](#) [CiteScore FAQ >](#) [Add CiteScore to your site](#)

About Scopus

[What is Scopus](#)

[Content coverage](#)

[Scopus blog](#)

[Scopus API](#)

[Privacy matters](#)

Language

[日本語版を表示する](#)

[查看简体中文版本](#)

[查看繁體中文版本](#)

[Просмотр версии на русском языке](#)

Customer Service

[Help](#)

[Tutorials](#)

[Contact us](#)

ELSEVIER

[Terms and conditions ↗](#) [Privacy policy ↗](#)

Copyright © Elsevier B.V. ↗. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

We use cookies to help provide and enhance our service and tailor content. By continuing, you agree to the use of cookies ↗.





Ads by Google

Stop seeing this ad Why this ad?

AIP Conference Proceedings

COUNTRY

United States

Universities and research institutions in United States

Media Ranking in United States

SUBJECT AREA AND CATEGORY

Physics and Astronomy
Physics and Astronomy (miscellaneous)

PUBLISHER

American Institute of Physics

H-I



Visitor Registration Open

Attendees will enjoy the highest insights into strategic, cross-industry partnership

Open

PUBLICATION TYPE

Conferences and Proceedings

ISSN

0094243X, 15517616

COVERAGE

1973-1978, 1983-1984, 1993, 2000-2001, 2003-2022

INFO

How to publish this conference proceedings

Get Your Demo

Accelerate digital transformation with the industry's most complete process platform. Nintex





Visitor Registration Open Now

Attendees will enjoy the highest level insights into strategic, cross-industry partnership

Open



SCOPE

Today, AIP Conference Proceedings contain over 100,000 articles published in 1700+ proceedings and is growing by 100 volumes year. This substantial body of scientific literature is testament to our 40-year history as a world-class publishing partner, recognize internationally and trusted by conference organizers worldwide. Whether you are planning a small specialist workshop or organizing largest international conference, contact us, or read these testimonials, to find out why so many organizers publish with AIP Conference Proceedings.

Join the conversation about this journal

10-11 October 2023 | Suntec SG

Accounting & Finance Show

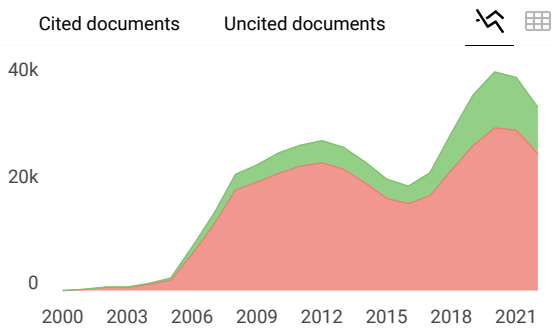
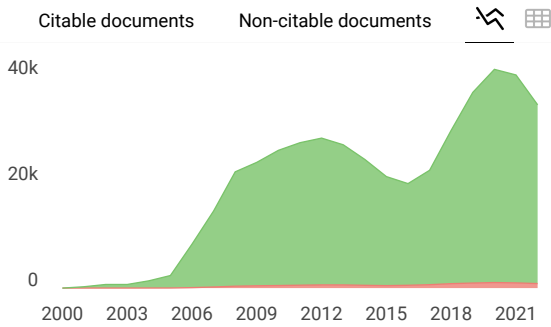
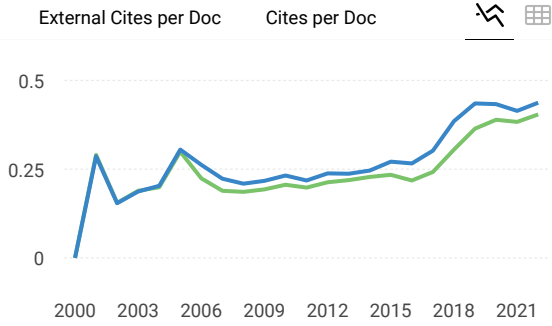
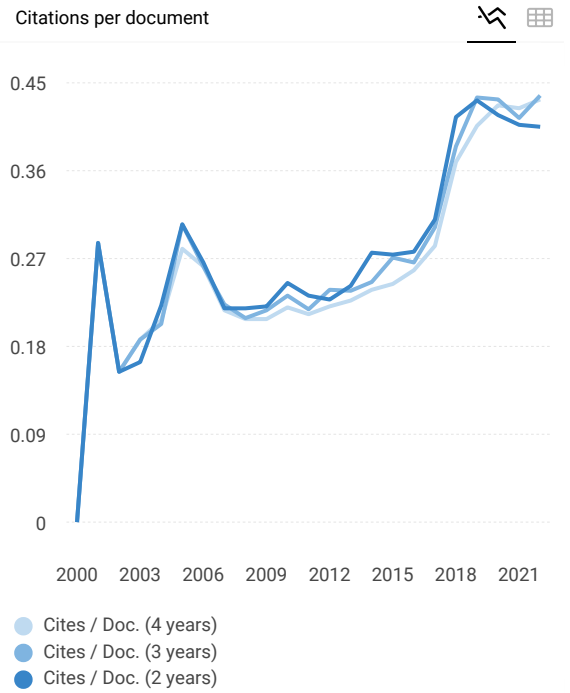
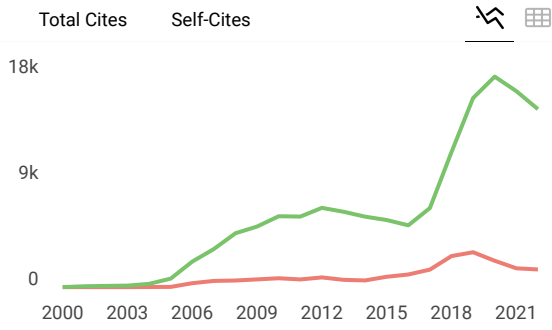
Sign

SJR



Total Documents





AIP Conference Proceedings ← Show this widget in your own website

Not yet assigned quartile

SJR 2022
0.16

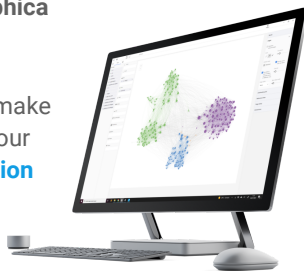
powered by scimagojr.com

Just copy the code below and paste within your html code:

```
<a href="https://www.scimaç
```

SCImago Graphica

Explore, visually communicate and make sense of data with our **new data visualization tool**.



10-11 October 2023 | Suntec SG

Accounting & Finance Show

Sign

Metrics based on Scopus® data as of April 2023

A **akhmed** 4 months ago

Dear Admin,

How long does the accepted manuscript takes to be published in this AIP Conference Proceedings? why has my manuscript until now it's not published yet, it's been 255 days since accepted. I have emailed to contact PIC but there is no exact date. Please explain this..thank you

reply



Melanie Ortiz 4 months ago

SCImago Team

Dear Akhmed,

Thank you for contacting us.

We are sorry to tell you that SCImago Journal & Country Rank is not a journal. SJR is a portal with scientometric indicators of journals indexed in Elsevier/Scopus.

We suggest you contact the journal's editorial staff , so they could inform you more deeply.

Best Regards, SCImago Team

B **Bhupender Parashar** 8 months ago

I have my papers published in AIP proceedings. it is showing in Scopus indexing database. BUT it is not showing in Web of Science database. Why is it so?

reply



Melanie Ortiz 8 months ago

SCImago Team

Dear Bhupender,

A **Aizat Akmal A.Mohamad Beddelee** 1 year ago

Hi, may I know if this journal is still covered by Scopus Index as the time this comment is written June 2022, the coverage expired already.

Thanks

reply



Melanie Ortiz 1 year ago

ScImago Team

Dear Aizat, thank you very much for your comment. We suggest you consult the Scopus database directly. Keep in mind that the SJR is a static image (the update is made one time per year) of a database (Scopus) which is changing every day.

The Scopus' update list can also be consulted here:

<https://www.elsevier.com/solutions/scopus/how-scopus-works/content>

Best Regards, ScImago Team

R **RATHEESH KUMAR NM** 1 year ago

AIP Proceedings publish full length papers in conference proceedings from medical science?

reply



Melanie Ortiz 1 year ago

ScImago Team

Dear Ratheesh,

Thank you for contacting us.

We suggest you visit the journal's homepage or contact the journal's editorial staff , so they could inform you more deeply.

Best Regards, ScImago Team

V **Viktor V.Chistyakov** 1 year ago

Dear Scimago!

Why has not assigned quartile for AIP Procs up to now? Were it assigned then what is?

Thank You

Bestregards

V.Ch.

reply





Reviewer's Comment - 2nd ITaMSA 2021

1 pesan

2nd ITaMSA 2021 <2nditamsa2021@easychair.org>
Kepada: Paduloh Paduloh <paduloh@dsn.ubharajaya.ac.id>

30 November 2021 pukul 10.59

Number: 5

Title: Designing of Temperature Control for Agitator Machine using Internet of Thing

Authors: Paduloh Paduloh, Helmi Fatahilah, Muhamad Aditya Ramadhan, Rifki Muhendra, Murwan Widyantoro, Sumanto Sumanto

Dear Paduloh Paduloh,

The reviewer has already reviewed your paper.

Below is the reviewer's comment :

"The flow of methodology is good, however, the detail and comprehensiveness of every stage need to be elaborated.

1. In AHP, the qualification and numbers of experts need to be reported. How the expert opinion is consistent and aggregated needs to be explained.
2. In QFD, the linkage of ratio and suggestion needs to be explained.
3. Scope, limitation, and managerial implications need to be discussed
4. Abstract and conclusion need to be rewritten"

Therefore, we will give you a chance to revise your paper and update it on Easy Chair by December, 24th 2021.

We appreciate your attention.

Best Regards,
Secretariat of 2nd ITaMSA 2021



Universitas
Bhayangkara
Jakarta Raya

Dr. Paduloh <paduloh@dsn.ubharajaya.ac.id>

Reviewer's Comment - ID: #5 - 2nd ITaMSA 2021

4 pesan

itamsa 2021 <itamsa@apps.ipb.ac.id>

3 Maret 2022 pukul 13.51

Kepada: paduloh@dsn.ubharajaya.ac.id

Cc: sumanto@dsn.ubharajaya.ac.id, Murwan@dsn.ubharajaya.ac.id, rifki.muhammad@dsn.ubharajaya.ac.id, aditramadhan41@gmail.com, fatahillahhelmi@gmail.com

Number: 5

Title: Designing of Temperature Control for Agitator Machine using Internet of Thing

Authors: Paduloh Paduloh, Helmi Fatahilah, Muhamad Aditya Ramadhan, Rifki Muhendra, Murwan Widyantoro and Sumanto Sumanto

Dear Paduloh,

Reviewer number #3 has already reviewed your latest version paper.

Below is the reviewer's comment :

"The problem arose with the R301 agitator often experienced overheating, which disrupted the production process and caused damage to the mixer engine motor. Currently, checking the temperature on the Agitator R301 was done manually using a thermo-gun and often caused the information to be hampered and several times caused the stirrer motor to die--as stated in the abstract, but they're no exact results what kind of solution actually found so far. In methodology, there was no information on how the authors acquired for information, what kind of responses were collected -- in result and discussion authors discussed component design consideration subjectively --- so please make all these titles, abstract, problem definition and objective as parallel as possible with conclusion --- make sure there no other grammar flaws left as a conclusion in the passage."

Therefore, we will give you a chance to revise your paper and update it on Easy Chair by **March, 7th 2022**.

We appreciate your attention.

Best Regards,
Secretariat of 2nd ITaMSA 2021

Dr. Paduloh <paduloh@dsn.ubharajaya.ac.id>

4 Maret 2022 pukul 08.46

Kepada: itamsa 2021 <itamsa@apps.ipb.ac.id>

Cc: sumanto manto <sumanto@dsn.ubharajaya.ac.id>, Murwan Widyantoro <Murwan@dsn.ubharajaya.ac.id>, rifki.muhammad@dsn.ubharajaya.ac.id, Muhammad Adithia Ramadhan <aditramadhan41@gmail.com>, fatahillahhelmi@gmail.com

Dear Sir,

Thank you for the chance given to revise, but in easy chair wee found we can't upload or revise anything.

Please change mode in easychair

Best Regards,
Paduloh

[Kutipan teks disembunyikan]

itamsa 2021 <itamsa@apps.ipb.ac.id>

4 Maret 2022 pukul 11.39

Kepada: "Dr. Paduloh" <paduloh@dsn.ubharajaya.ac.id>

Dear Mr. Paduloh,

Please revise your paper and send the **PDF** and the **Ms.Word documents** to itamsa@apps.ipb.ac.id.
Because we no longer can update the Easy Chair.

Thank you

[Kutipan teks disembunyikan]

--

Best Regards,

Committee
2nd ITaMSA 2021

Dr. Paduloh <paduloh@dsn.ubharajaya.ac.id>
Kepada: itamsa 2021 <itamsa@apps.ipb.ac.id>

7 Maret 2022 pukul 23.34

Dear Sir,

Please find the attachment file for the revised manuscript

Thank you

Paduloh
[Kutipan teks disembunyikan]

2 lampiran



IoT Agitator Template - 07032021.edited.docx
371K



IoT Agitator Template - 07032021.edited.pdf
1043K