



Database Development in Using and Maintaining Machine and its accessories at SMK Muhammadiyah Kartasura and Jatinom Klaten in Community service

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Abstract

The aim of the program was community service types of application of science and technology by Database Creation and Usage Machine Maintenance and its Equipment at Muhammadiyah Kartasura and Jatinom Klaten as Vocational School to support the practicum process in the Muhammadiyah Vocational School laboratory. The implementation method was by synchronize basic inventory, then made a data base application by means of machine tools sticking with barcodes on a laboratory scale. With this activity, its will facilitating the implementation of routines and practicum readiness from time to time. Thus at the same time this will add value to the teaching and learning process at SMK which includes 40% theory and 60% practice manufacture. Through this activity it will also add value to their vocation which will bring the world of education and industry much closer, especially in the field of goods assembling and manufacturing. From observations while working with partners, namely SMK Muhammadiyah Kartasura and SMK Muhammadiyah Jatinom Klaten, the obstacle faced is in coaching on the creation of a data base for the use and maintenance or readiness of tools for practice. The process of creating a database of equipment, usage and conditions, this will support the continuity of the practicum process smoothly. The making of this database will be transmitted and will become provision for students primarily for competence in the area of manufacturing work or for future entrepreneurship. So it is expected from this process, students and teachers get a new way of learning, useful for students and the existence of the SMK in the future, particularly in learning assembly making and thinking steps to control the underlying equipment. Thus the students have enough competence and adaptive when entering the world of work related to the process design based on data collection and monitoring using technology growing of smartphones.

1. Introduction

This community service activity is based on partner conditions which is a SMK located adjacent to the location of the University Muhammadiyah Surakarta, which is about 5 km.

The school's code is sufficient potential, because there are many teachers who are from Bachelor of Mechanical Engineering education he is young and has the enthusiasm to advance his school. This school is in a developing condition both physically and non-physically, where SMK Muhammadiyah Kartosuro, which is approximately 5 km from the UMS campus.

In this proposed community service program, we would like to carry out community service in the application of science and technology that supports it the process of creating a database for the use and maintenance of the machine along with it the equipment is at SMK Muhammadiyah Kartasura, with the hope that it will giving added value to the teaching and learning process in SMK, especially in participation in the assembly of manufactured goods. From observations during working with partners, namely SMK Muhammadiyah Kartosuro and SMK Muhammadiyah Jatinom, the obstacle it faces is that it doesn't exist yet Creating a database for the use and maintenance of machines and their equipment at SMK Muhammadiyah Kartasura so that it will further expedite the process teaching and learning mainly on the side of the use of tools in practical lessons. So that It is hoped that from this process, the students and teachers will get service a new way of learning, which is beneficial for students and the existence of SMK in the future, especially in practical learning.

In this community service, we carry out applications for monitoring the use, reconditioning, condition and readiness of the tool every time, so when it will be used soon we will find out its availability. Another advantage is to design and make their own steps, then the need teachers or students can have soft skills, equipment does not need to buy from a tool shop, and the price can be reduced, with steps better management of practicum tools or production tools.

This community service includes aspects of designing and implementing. Making Database on the use and Maintenance of Machines and their Equipment at SMK Muhammadiyah Kartasura by using a database that can be connected to a smartphone. Then the result of the design Applied to be made in the workshop. The novelty obtained by SMK partners from community service activities are: how to design goods with the software obtained by the teachers, make devices from the designs made, lessons on the process implementation of manufacturing applications in the workshop, operational use or settings on the machine and application to laboratory management or factory.

Problem of partner that they are still getting constraints in the process of inventorying and monitoring laboratory equipment and readiness that can be monitored at any time which includes: inventory, record the state of the tool and apply it to the application database, especially in production laboratories at Muhammadiyah Vocational Schools Kartasura.

Solutions offered in this community service activity the solutions offered include: 1). How to inventory items with barcodes, 2) Create information applications that can monitor where about and conditions practicum tool, 3) Smooth monitoring of the condition and use of the tool, 4) Operational use in the machine, and 5) Application to the scheduling and reconditioning of practicum tools.

The specific purpose of this community service program is that we want to carry out community service in the application of science and technology in Creating a Use and Care Database Machines and Equipment at Muhammadiyah Kartasura Vocational School, which

support the practicum process in the Muhammadiyah Vocational School laboratory Kartasuro and Jatinom Klaten.

2. Methods of Implementation

The methods used in problem solving include analytical methods is shown on the figure 1 as follows.

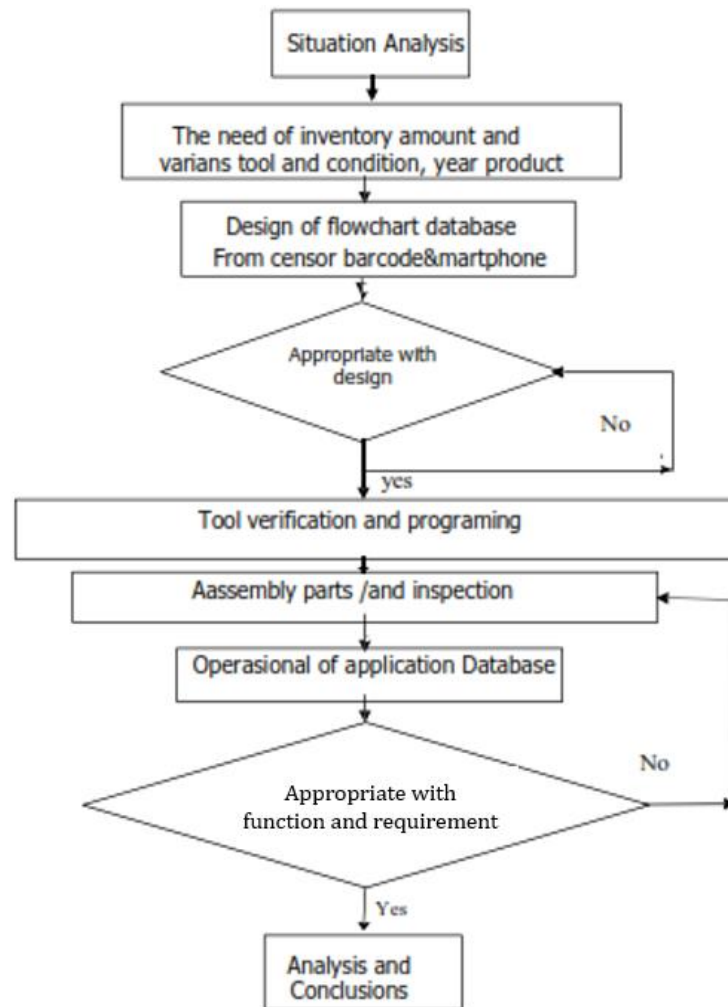


Figure. 1 Flow chart diagram of activity

The method of implementation in this service is carried out by understanding the stages process manufacture Which cover: Designing stage based on aspects: a). Numbering and Function, b). Recondition planning/year and so forth, c). Tool control and monitoring function, d). Apply the design based on the above aspects according to the flowchart, e). Create applications, f) Applying drawings on aspects of laboratory equipment, g) Integrative function check.

3. Results and Discussion

Results and discussion contains of the implementation of community service activities along with the discussion. From the service of community undertaken some of progress are produced. Such as QR code of SMK Muhammadiyah Kartasura, specifically QR code at main gate both of enter and exit access to the laboratory as shown at the following figure 2. And it is now compulsory for visitor to fulfill.



Figure 2. QR Code

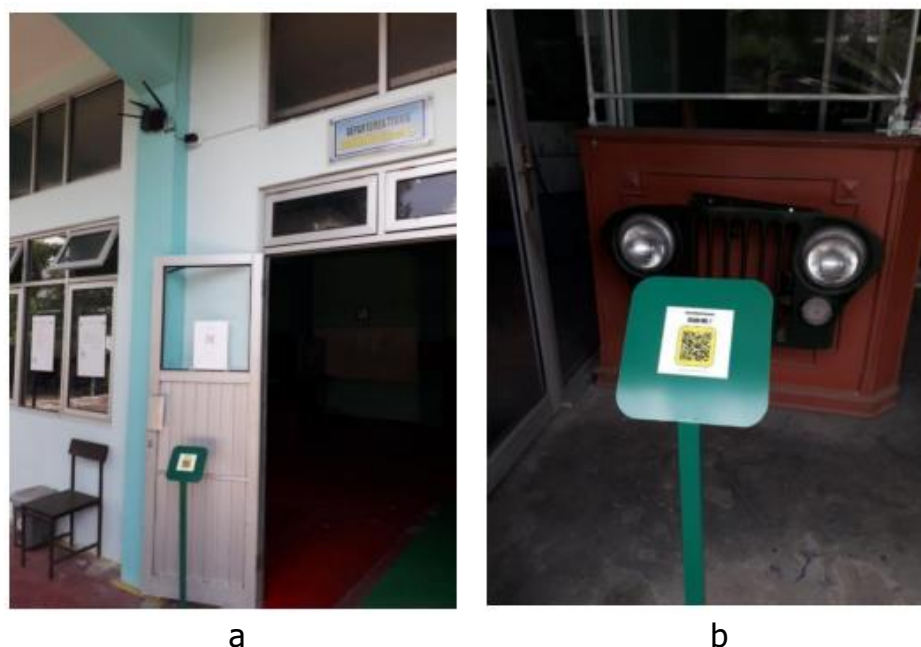


Figure 3. a). Machining Laboratory and b). Production unit

The feature of application after connected scan QR code at mobile phone is shown on Figure 4.

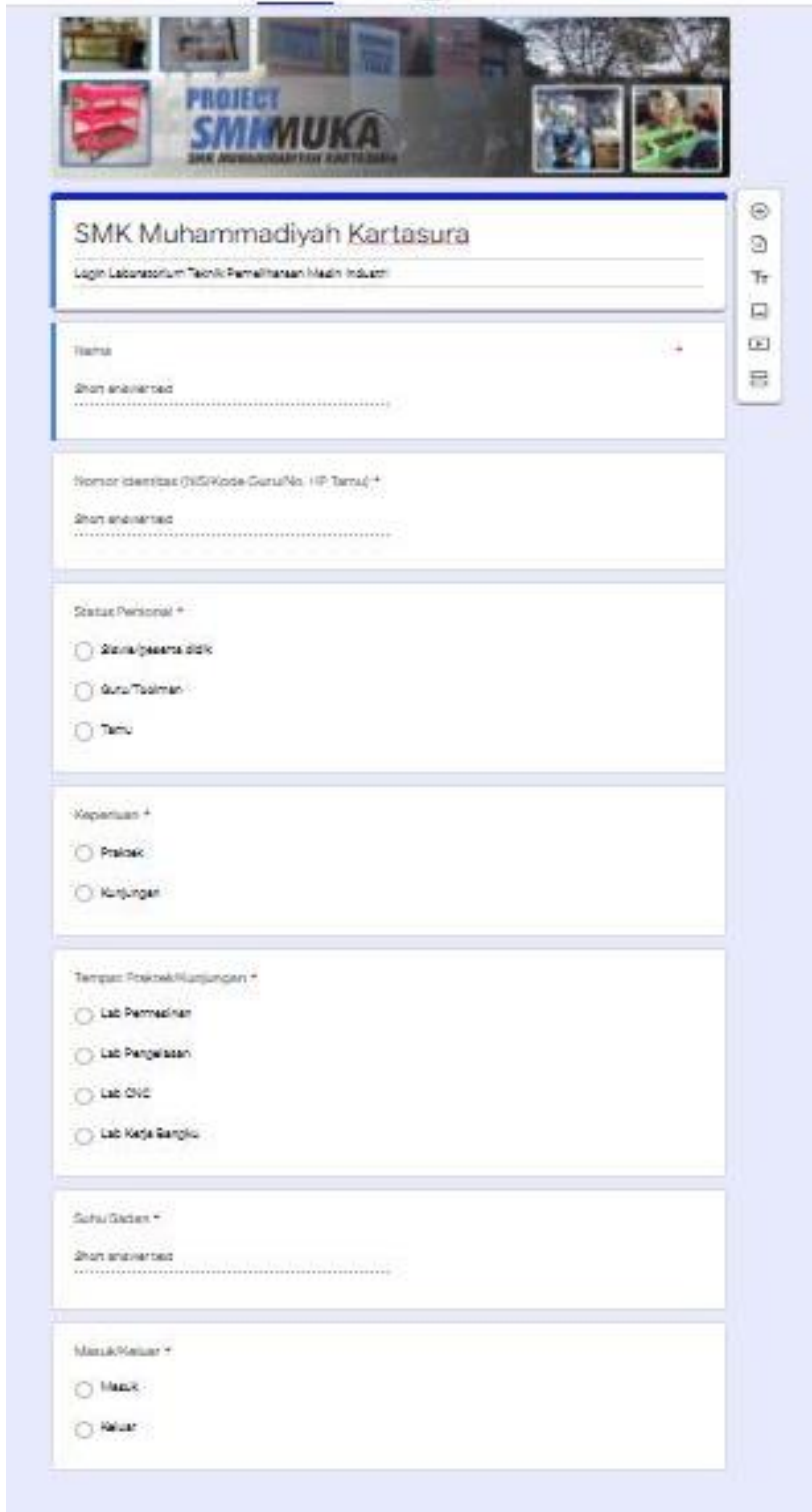


Figure 4. Feature on Mobile application

Timestamp	Nama	Nomor Identitas (NIS/Kode Guru/No HP)	Keperluan	Suhu Badan	Masuk/Keluar	Status Personal	Tempat Praktek/Kunjungan
9/19/2021 21:30:32	Bagas H P	08	Praktek	36,3	Keluar	Guru/Toolman	Lab Permesinan
9/20/2021 17:20:06	Joko virdadi ST	014	Praktek	36,3	Masuk	Siswa/peserta didik	Lab Permesinan
9/20/2021 17:41:20	Danang Dwi Saputro	11	Praktek	36,2	Masuk	Siswa/peserta didik	Lab Permesinan
9/20/2021 17:57:40	Al Difa Nur R	03	Praktek	36	Masuk	Siswa/peserta didik	Lab Permesinan
9/20/2021 18:00:30	Danang setiawan	12	Praktek	36	Masuk	Siswa/peserta didik	Lab Permesinan
9/20/2021 18:02:40	Bambang Higo Nurulieo	09	Praktek	35,9	Masuk	Siswa/peserta didik	Lab Permesinan
9/20/2021 18:03:21	ALI MUSTOFA	04	Praktek	36	Masuk	Siswa/peserta didik	Lab Permesinan
9/20/2021 18:04:14	Bagas H P	08	Praktek	61,3	Masuk	Siswa/peserta didik	Lab Permesinan
9/20/2021 18:10:46	amirahang	05	Praktek	36	Masuk	Siswa/peserta didik	Lab Permesinan
9/20/2021 18:10:43	ARRAFI NICKO KUSUMA	07	Praktek	35,8	Masuk	Siswa/peserta didik	Lab Permesinan
9/20/2021 18:11:01	Anugrah Nur Cahyo	06	Praktek	35,8	Masuk	Siswa/peserta didik	Lab Permesinan
9/20/2021 18:13:34	Adnan muhammad Jiff	2	Praktek	35,9	Masuk	Siswa/peserta didik	Lab Permesinan
9/20/2021 18:21:07	Dhoho arianan	09	Praktek	36	Masuk	Guru/Toolman	Lab Permesinan
9/20/2021 18:25:31	Suharyanto	03	Praktek	36	Masuk	Guru/Toolman	Lab Permesinan
9/20/2021 18:50:27	Hadi Rinzay	08164230477	Kunjungan	36,4	Masuk	Guru/Toolman	Lab Permesinan
9/20/2021 18:44:05	Bambang Higo Nurulieo	09	Praktek	36,1	Keluar	Siswa/peserta didik	Lab Permesinan
9/20/2021 18:44:44	Danang Dwi Saputro	11	Praktek	36,1	Keluar	Siswa/peserta didik	Lab Permesinan
9/20/2021 19:47:55	Danang setiawan	12	Praktek	36,2	Keluar	Siswa/peserta didik	Lab Permesinan
9/20/2021 21:13:46	amirahang	05	Praktek	36	Masuk	Siswa/peserta didik	Lab Permesinan
9/20/2021 21:19:10	Al Difa Nur R	03	Praktek	36,3	Keluar	Siswa/peserta didik	Lab Permesinan
9/20/2021 21:19:20	Ali mustafa	04	Praktek	36,1	Keluar	Siswa/peserta didik	Lab Permesinan
9/20/2021 21:20:25	Aditya wahid H	01	Praktek	36,2	Masuk	Siswa/peserta didik	Lab Permesinan
9/20/2021 21:20:47	Amel Niska Kusuma	07	Praktek	36,1	Keluar	Siswa/peserta didik	Lab Permesinan
9/20/2021 21:21:22	Aditya Wahid H	01	Praktek	36,5	Keluar	Siswa/peserta didik	Lab Permesinan
9/20/2021 21:21:26	Adnan Muhammad Jiff	02	Praktek	36,4	Keluar	Siswa/peserta didik	Lab Permesinan
9/20/2021 21:21:36	Anugrah Nur Cahyo	06	Praktek	36,5	Keluar	Siswa/peserta didik	Lab Permesinan
9/20/2021 21:22:29	Suharyanto	03	Praktek	36	Keluar	Guru/Toolman	Lab Permesinan
9/21/2021 17:25:05	Dhoho arianan	09	Praktek	36,5	Masuk	Guru/Toolman	Lab Permesinan
9/21/2021 17:47:05	Anel Niska Kusuma	07	Praktek	36,1	Masuk	Siswa/peserta didik	Lab Permesinan
9/21/2021 17:51:00	Danang Dwi Saputro	11	Praktek	35,9	Masuk	Siswa/peserta didik	Lab Permesinan
9/21/2021 17:51:24	Joko virdadi	014	Praktek	36,3	Masuk	Guru/Toolman	Lab Permesinan
9/21/2021 17:55:10	BAGAS TRI P	08	Praktek	63,1	Masuk	Siswa/peserta didik	Lab Permesinan
9/21/2021 17:58:02	Al Difa Nur R	03	Praktek	36,2	Masuk	Siswa/peserta didik	Lab Permesinan
9/21/2021 18:00:44	Bambang Higo Nurulieo	09	Praktek	36,0	Masuk	Siswa/peserta didik	Lab Permesinan

Figure 5. Database at desktop view

The desktop view feature is showing in figure 5. Then data user every single user is monitored by the following figure 6. Followed by figure 7. Is the data monitoring in term of body temperature of the user.

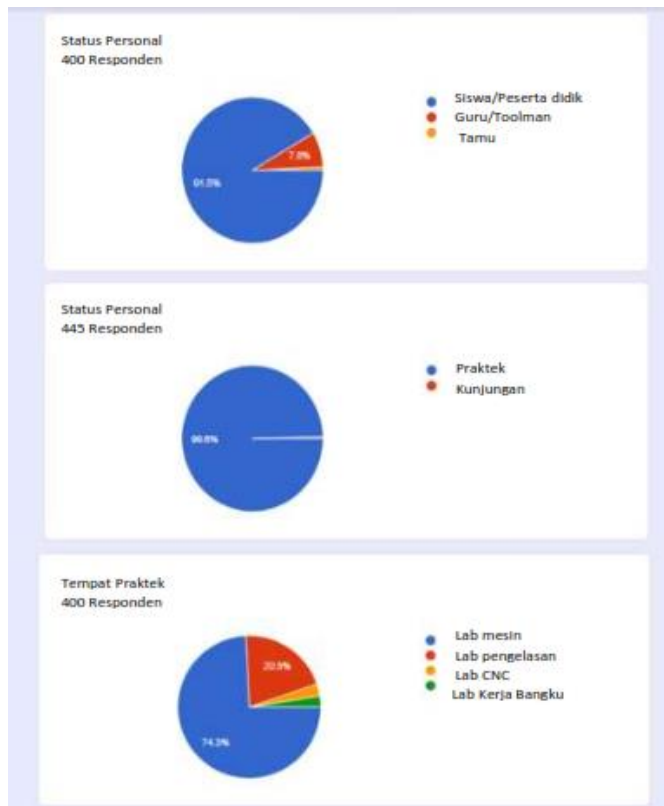
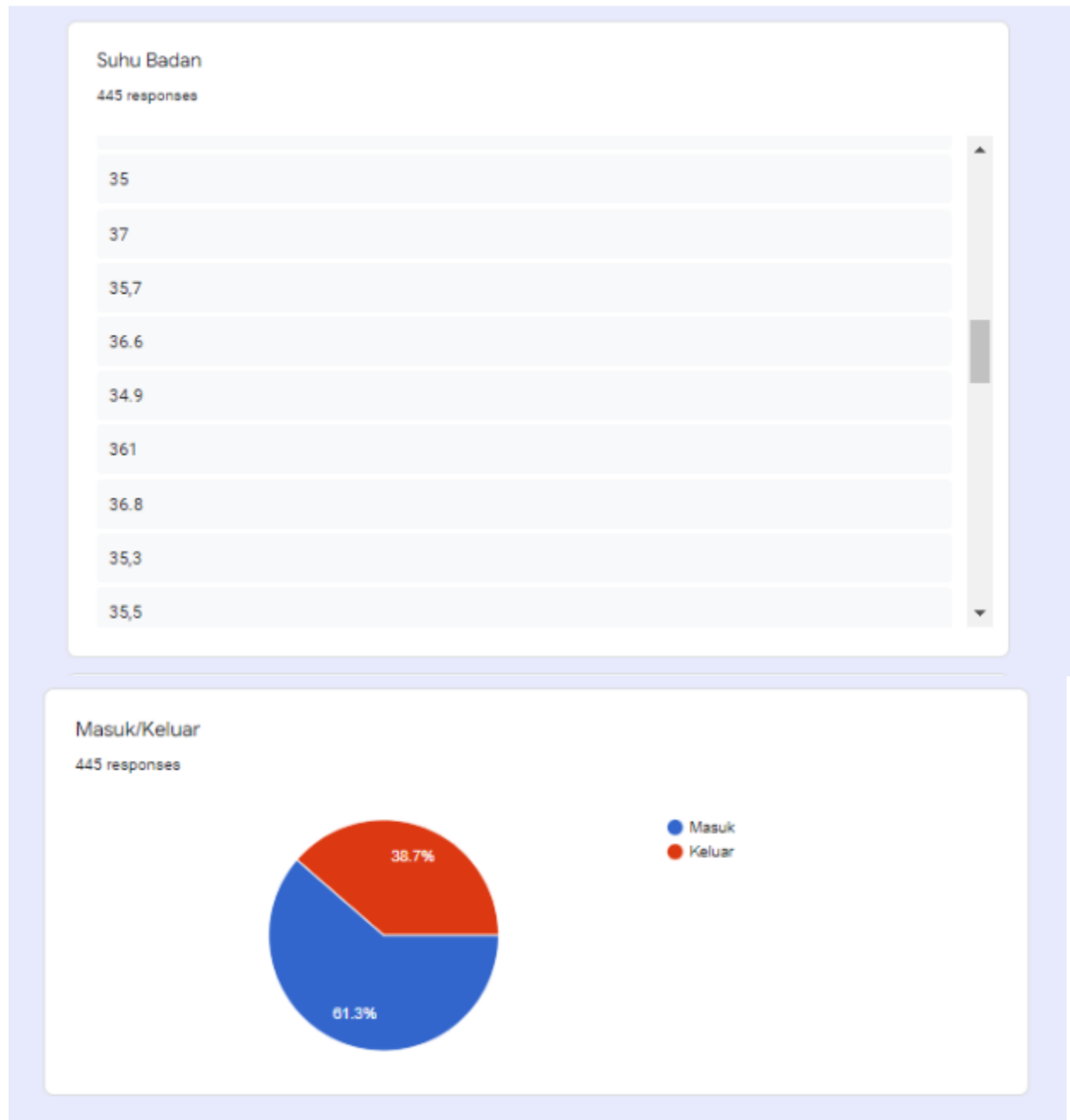


Figure 6. Summary Database at the dashboard



Figur 7. Data control body temperature

Some of QR code has been giving information data for use of available equipment in the laboratory SMK Muhammadiyah Kartasura. Beside that QR code can be used as information the use of equipment can also be used in mapping availability tool and its satisfactory. Therefore, can be utilized in preparing of procurement process of tool based on the need. For figure 7. We can also use such tool to understand the user body temperature, that is suitable in pandemic situation is much important in understanding condition of user, whether or not the user can access to the laboratory automatically. The result found also can be connected

to the smartphone mobile, that way data can be read in other place without attend and see the equipment at the laboratory. The equipment made is functioned as a log book inventory in the laboratory.

4. Conclusion

The management of laboratory is important in modern era. In this service community carried out, in particular that management is not consider to be important and commonly unmanaged well. Through this activity the impact of the community services conducted both of planning and in the future need to be anticipated. Its hope that in procurement process of new equipment. Should be considering in line with the program linierity. Therefore, implicitly hope, that all activity is based on with grand design, and not by accident. This is noted that including of planning of the equipment based on development function, as well as considering of depreciation management from the uses of equipment

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