

**Kuantan, Malaysia**

# **Sekolah Kebangsaan Kempadang**

**Building an automated  
system to track student  
progress**



**WORLD'S  
BEST SCHOOL**  
Innovation

**YAYASAN  
HASANAH**



A foundation of Khazanah Nasional



**WORLD'S  
BEST SCHOOL  
PRIZES**

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# Introduction

Sekolah Kebangsaan Kempadang is a primary school in Kuantan, Malaysia. In 2021, it faced two challenges: to teach and track student progress during the pandemic, and to access real-time student learning data (for lesson planning) after the Ministry of Education decided to scrap the known end-of-primary test known as UPSR. The school's innovative solution was to create SMARTZOOM, a fully-automated student progress tracking system.

Terima Kasih  
*Cikgu*  
SK  
Kempadang  
Kuantan 1937



# Profile:

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**Country:**  
Malaysia



**Region:**  
Kuantan



**School type:**  
Public school



**Location area:**  
Rural area



**Student population:**  
1501 to 2000



**Prize Category:**  
Innovation

“Most of our students are from the middle class and lower class but why they [parents] want to send their children here is because of our culture. The pupils love to come to school and they enjoy the new style of learning because we are student-oriented.”  
– Fatin Diana binti Zakaria, Teacher, SK Kempadang



# In-depth look

## CONTEXT AND CHALLENGE

The majority of Sekolah Kebangsaan Kempadang's students come from the bottom 40% income bracket in Malaysia. In spite of this, the school holds a strong faith in its ability to educate all those who walk through its doors.

Since it became a Trust School in 2015, its enrolment rate has increased by 6-7% every year. The school has drawn the admiration of parents who see the school as a centre that serves a high-quality and holistic education, with a strong focus on academic achievement.

In recent years, the school has been beset by challenges, in particular, in 2021 when the Malaysian Ministry of Education (MOE) decided to remove the end-of-year primary summative test – known as UPSR –

in favour of the ongoing, school-based assessment. Because the school was not given the tools to access real-time (or formative) student learning data to use as a basis for future lesson planning, teachers had to compile and retrieve the information manually, which proved to be a very time-heavy task.

The reason the MOE scrapped the UPSR was to force schools to move away from only focusing on academic success, where the MOE had long seen a lack of holistic education that supported all students, regardless of their academic prowess. Instead of working towards UPSR, schools were asked to focus on school-based assessment, known as Pentaksiran Bilik Darjah or PBD, globally known as formative or ongoing assessment.



The school, therefore, needed an innovative solution to support its students and adapt to the new governmental policies. Prior to the change, teachers used to report summative student achievement data biannually on the central MOE system known as SAPS, which was also discarded with the move away from UPSR. In its place, schools were asked to submit a biannual Excel document to the local district and state education offices.

While Sekolah Kebangsaan Kempadang had become empowered to focus on a different education model, they were unable to comply with the MOE's way of tracking students' progress. Some teachers used their own Excel documents, whereas others used traditional pen and paper. But the school wanted to help its teachers not only in capturing and recording student progress, but in helping them decide what kind of student progress data to collect.

It became a question of how the school could help its teachers to track student progress immediately rather than twice a year.





PASAR SUMBER  
MILIK CEBARAN

PASAR SUMBER  
MILIK CEBARAN

PASAR SUMBER  
MILIK CEBARAN

MISI  
BERSAMA SAMA  
MELAKSANAKAN  
PENGALIHAN  
PERANGKAT  
KEMAMPUAN  
MELAKSANAKAN  
PENGALIHAN  
PERANGKAT  
KEMAMPUAN





**“The planning, design, development, and implementation of SMARTZOOM has been a long and rewarding process for our school community. It has brought people together, improved our collective problem solving and, most importantly, had a measurable impact on student learning.”**

**– Zulkefli Bin Jantan, Former Teacher & Project Coordinator,  
SK Kempadang**



# EXPERTISE AND APPROACH

The school's solution was to develop a fully-automated student tracking system called SMARTZOOM. Teachers could easily use the platform and its formative assessment data to better inform their lesson planning.

The school was lucky in that it had a staff member who had programming experience, and whose expertise had previously won him some international Innovation awards for education technology applications.

An overhaul of that size took time, though. "Rome wasn't built in a year, or a month," said Fatin Diana binti Zakaria, a teacher at the school. "After a few workshops, they found out the tool is very easy and simple to use."

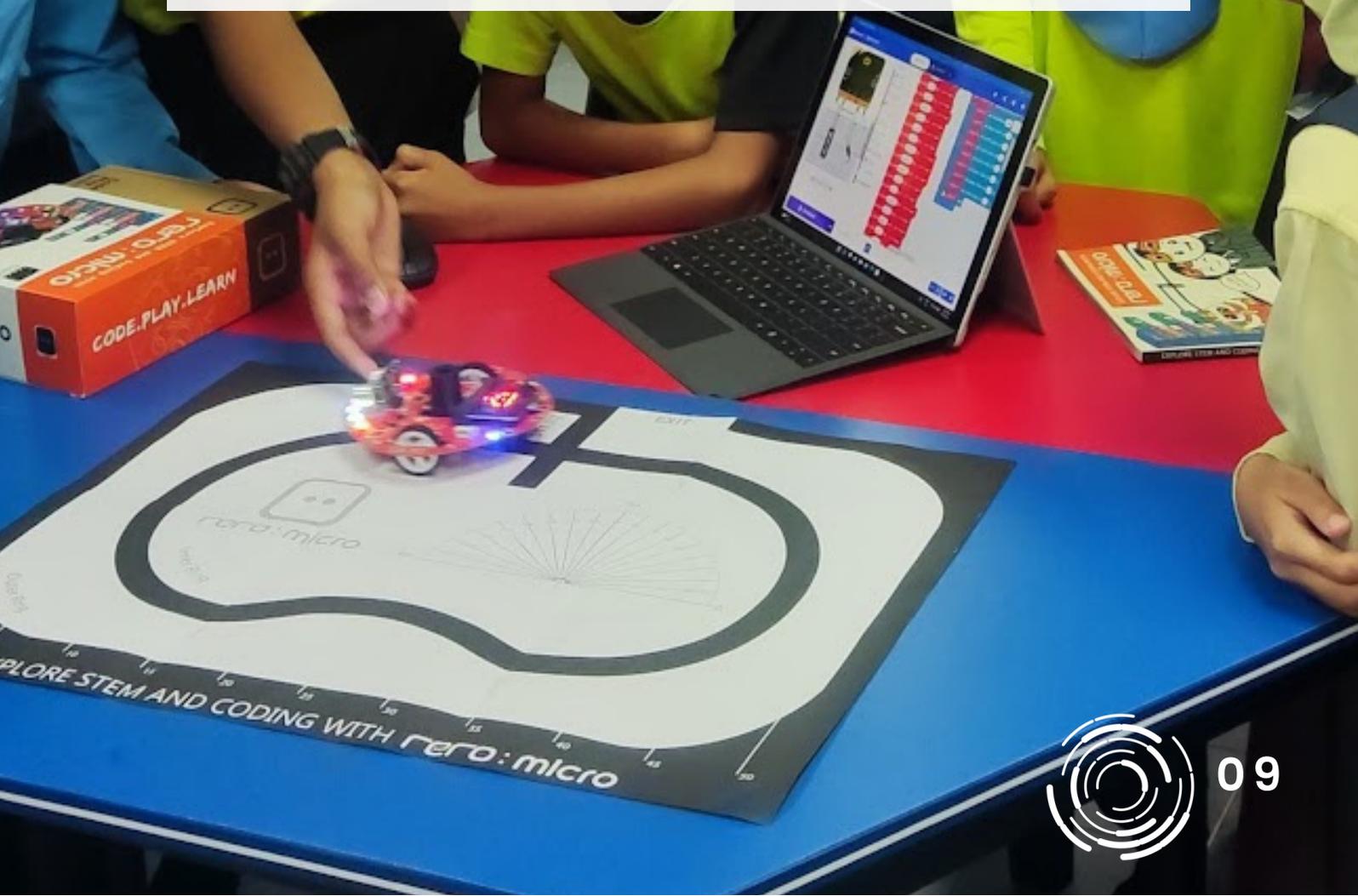
Because all teachers in Malaysia have a designated Google account linked to the Ministry of Education, SMARTZOOM was built to integrate into Google Chrome. The platform loads its data into Google Sheets, which staff then use to devise concrete and detailed lesson plans tailored to their specific class. Supporting teachers and Panel Heads watched "How to" YouTube videos and attended training workshops to help them with the transition.

In order to encourage teachers to perform regular updates in SMARTZOOM, the school had to create a cultural shift. From ad hoc learning data capture to a standardised approach to learning SMARTZOOM data, the measures were put in place so that every child received the learning support they needed at the time. "Of course, we will always take a look at the feedback and try to improve the tools," Zakaria said, speaking of the school's commitment to feedback from parents and the wider school community.



**“SMARTZOOM is very useful, easy, and beneficial. We want to spread our wings, to share it with more than 10,000 schools in Malaysia.”**

**- Fatin Diana binti Zakaria, Teacher,  
SK Kempadang**

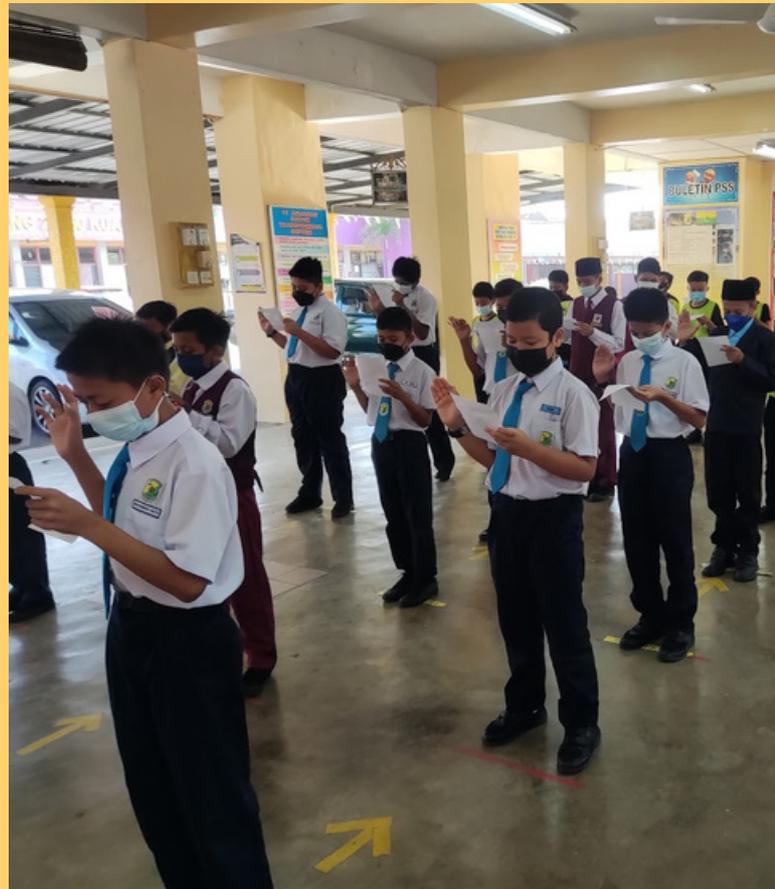


# OUTCOMES AND RESULTS

Planning, designing, developing, and launching SMARTZOOM proved to be a long and rewarding process for the school. It brought people together, improved the school's ability to solve problems, and, most importantly, had a measurable impact on student learning.

Through a process of feedback and trial and error, the school was able to learn and adapt the programme over the course of two years. For example, in the early stages, the platform only uploaded the MOE's reporting templates to Google Sheets. However, after working with Panel Heads and teachers, the school realised they needed to capture richer, real-time data that they could use after each lesson. This new feature was called SMARTREKER, the formative assessment data element of SMARTZOOM.

Ultimately, the whole school pulled together to solve a problem that was negatively impacting its ability to fully support and cater to its student population. Through empowered and distributed leadership, and an ongoing process of feedback and iteration, the school was able to achieve its goal.

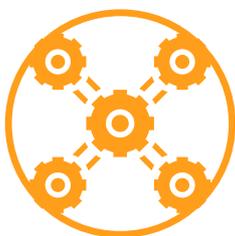


# Key Steps



## SENIOR LEADERSHIP BUY-IN

The first step the school took was to make sure that the faculty had the full support of the Senior Leadership Team (SLT), and especially the Guru Besar (School Principal). As part of this process, faculty ensured that SMARTZOOM was on the school meetings discussion agenda so that the whole school was aware of what teachers and staff were trying to achieve and why they wanted to achieve it. With the need for SMARTZOOM established and agreed upon, the development was able to begin.



## STAKEHOLDER ENGAGEMENT

Apart from teachers and counsellors, it was important to involve parents, the District Education Office (PPD), the State Education Department (JPN), and students themselves to communicate the objectives of SMARTZOOM.



Parents were informed early on so that they understood the school's overall objective.

It was particularly important to engage the teachers, as they would be the end users. Because of this, the school made sure to solicit their feedback and ideas along the way, as well as get them to articulate their needs.

To engage the PPD and JPN, faculty went to them for advice on the specific kinds of required data, while also asking for support regarding MOE-compliant reporting methods and standards.



## **CO-CONSTRUCT WITH END USER**

The next step was for faculty members to work together on building SMARTZOOM's features. This involved teacher meetings to learn about and understand their current challenges in collecting student progress data and how an automated system might help them.

Teachers were also encouraged to share their ideas on the kinds of features they would like to see and how they would use the collected student data with regard to their classroom practice.



These meetings established the need for an easy-to-use platform for data collection and storage, though the most important feature would be a summary dashboard, highlighting student progress in which students were falling behind. This feature became the Traffic Light Care System, where teachers can put their students into three 'Green', Yellow', or 'Red' indicator categories, and which helps teachers map out which student to help and on which particular issues.



## **CREATE A PROJECT TEAM OF SUBJECT MATTER EXPERTS**

The school then decided to create a team of Subject Matter Experts who would advise on the platform design and development. The project team consisted of Subject Matter Experts who looked at student assessment, the ICT team who would focus on developing SMARTZOOM, the school Principal, Middle Leaders who would drive the change initiative, and teachers who would use the programme.

By creating a diverse project team, the school was able to complete two crucial steps simultaneously. The first was for the school to seek a wide range of opinions and information on the design,



while the second was to have a core team of SMARTZOOM “champions” to assist with the launch once development was complete.



## **KEEPING IT SIMPLE**

As the school began to understand the range of student data it could collect, there was a concern that the initial objective – of capturing student progress data – might become lost in other competing data requests. For example, school faculty imagined adding a student attendance component to SMARTZOOM, but soon realised that the more features there were, the more diluted the whole purpose would become.

While there was scope for extra features, the school decided to keep the data collected as relevant to its original intent as possible, thereby making the platform and information easier to use.

Also, because not all teachers brought laptops to school, accessibility became another consideration. The school, therefore, tested the platform’s usability on smartphones and made it suitable for mobile.





## **MAKING STUDENT PROGRESS DATA A PRIORITY**

Before SMARTZOOM, the MOE reporting was a one-way data input system the whole country used twice a year. This made it cumbersome, and often draining when the system overloaded, forcing teachers to upload the same information multiple times.

To prevent any reservations towards SMARTZOOM, the school made it clear that student progress data was the priority. Once the connection between student progress data, SMARTZOOM, and Assessment for Learning was obvious, teachers saw the difference between SMARTZOOM and the MOE system. More importantly, they saw how SMARTZOOM could help their teaching and the students' learning.



## **ONGOING TEACHER SUPPORT AND TRAINING**

Once development was complete, the school began to provide comprehensive, ongoing training and support for all teachers. This was to ensure that teachers knew how to use the system as part of their ongoing teaching practices.



The school started a series of workshops that covered everything from user tutorials to how SMARTZOOM data could be built into future lesson plans. To add further support, the faculty made a step-by-step User Guide library of 'How to' YouTube videos.

In addition to having the workshops, SMARTZOOM student progress data analysis was an agenda item at all Panel Head meetings. This was the support mechanism for teachers to discuss student support interventions based on SMARTZOOM data.



## FEEDBACK

The next step was to collect regular feedback from teachers and Panel Heads. For example, during the initial phases of the launch, the school realised that not all teachers were using the platform. As it transpired, these teachers had only recently begun teaching new year groups and hadn't found the time to both get used to SMARTZOOM and plan their lessons for an unfamiliar year group.

To resolve this, the school worked with the Panel Head and teachers to show how they could begin by inputting student



progress data for a few students a day rather than the whole class and build, over time, a solid data set from which to get insights.



## TELLING SUCCESS STORIES

The final step was to celebrate the successful use of the platform. In the beginning, faculty used school-wide and Subject Panel meetings to acknowledge those teachers who regularly updated student progress data on SMARTZOOM. Once most teachers were using the platform, the school switched the focus to classroom-based stories and, in particular, how SMARTZOOM insights and data had helped students to progress with their learning.



# Advice and Guidance

SMARTZOOM would not be what it is today had it not been built alongside its primary users: the teachers and school faculty. In addition to that end-user feedback and insight, it's important to collaborate with other institutions to bring benefit to other students and school communities.

## More information

 [SK Kempadang](#)

 [SK KEMPADANG](#)

Learn more about the [SMARTZOOM system](#)

Watch this [school's video](#)

