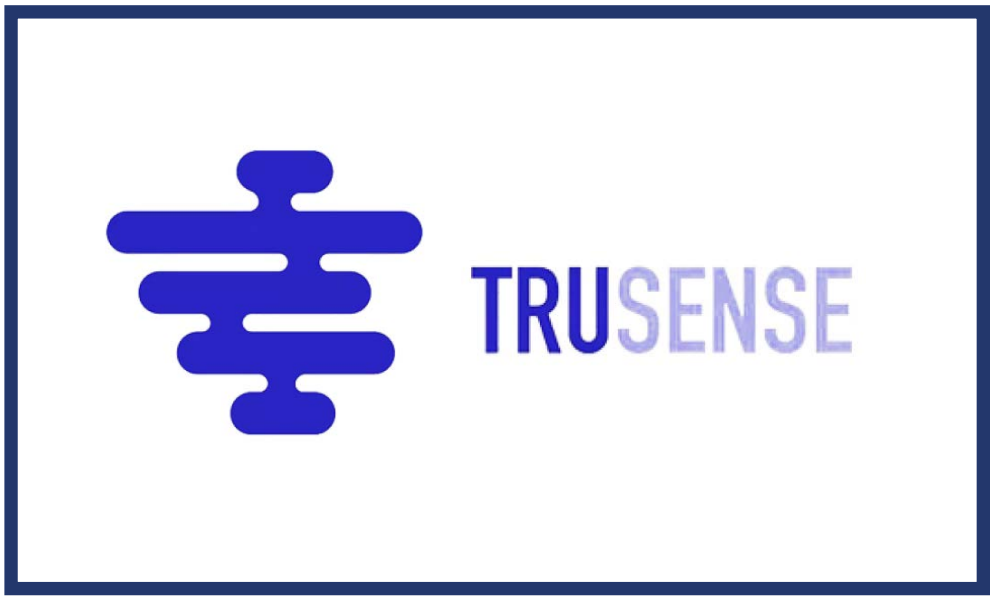
Team Results Document

TruSense



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2021/08/18

浙江大學
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SensUs

CONTEXT

SUMMARY

TruSense is from Zhejiang University, China, which mainly consists of devoted undergraduates to develop a Influenza virus biosensor in saliva. Despite the pandemic of the coronavirus, our endeavor yielded TruSensor, an electrochemical biosensor that integrates molecular biology, electrochemistry, engineering and computer science technologies. By dropping a sample of flu-infected saliva into the device, the virus concentration can be sensitively detected in a short period of time, which provides useful guidance for administration. Along with the device, we have also designed a user-friendly Android app, enabling real-time update of testing results from the device as well as offering visualized statistical results. To put the biosensor into practical use, we have comprehensively analyzed China's medical market and developed a business model which shows that there is a promising future for our biosensor.

BIOSENSOR SYSTEM AND ASSAY

Molecular recognition and assay reagents

We develop a biosensor for influenza virus in saliva on OECT. We used screen-printed carbon electrode as source and drain electrodes on the PET (polyethylene terephthalate) substrate. PEDOT:PSS, an organic semiconductor material with high conductivity and stability in aqueous environment, was printed between source and drain as channel. We used gold electrode as gate electrode for further modification.

The hemagglutinin (HA) in the surface of the influenza virus H1N1 can be specifically captured by the antibody combined to the gold electrode through 11-mercaptoundecanoic acid (11-MUA). 11-MUA is widely used for forming self-assembled monolayer on surface of gold and crosslinking antibody. The undecanoic acid is fixed on the surface of the electrode by the Au-S bond formed between the terminal sulfhydryl group and the gold electrode, and the carboxyl group at the other end forms an ester bond with the amino group on the antibody through NHS/CDC.

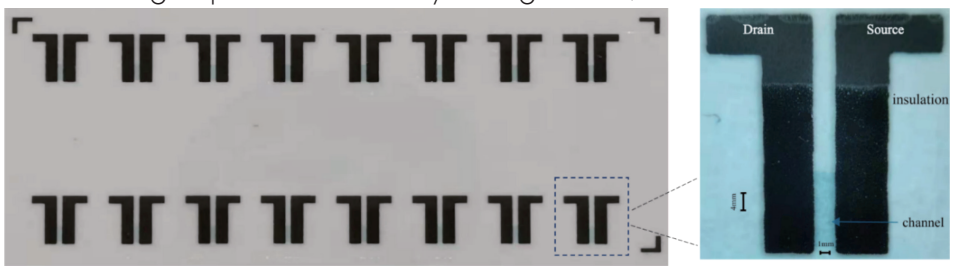

Fig.1. Left: the screen printed OECT physical picture, Right: shot under the microscope, the blue area is the channel

Physical transduction

Organic electrochemical transistor (OECT) is a semiconductor device that generates current signals depending on the input electric field. Its features of simple fabrication, high sensitivity and low voltage operation make it an ideal device for the real-time detection of influenza virus (H1N1) . Gate, source, drain, semiconductor layer, insulation layer and substrate are the major components of OECT. For depletion mode OECTs, the appliance of gate voltage would force cations in the electrolyte to enter or exit the semiconductor layer and change its conductivity, resulting in the alteration of the drain current, which is eventually converted to the concentration of HA. PEDOT: PSS is a p-type semiconductor and its conductivity is proportional to the density of holes within. Gold electrode is used as gate electrode for further modification. Anti-HA is formed and crosslinked by 11-mercaptoundecanoic acid (11-MUA). When antigen (HA peptide) specifically anchored onto the immobilized antibody, drain current variation follows. Therefore, a high concentration of HA peptide in saliva induces a low OECT drain current, while a low concentration evokes a relatively high current, making it possible to detect virus sensitively and rapidly.

Cartridge technology

We use poly ethylene terephthalate (PET) plate as the base plate of our disposable device. In our case, OECT consists three screen-printed layers. The first layer is carbon drain and source with relatively high electrical conductivity; the second layer is PEDOT:PSS providing holes as semiconductor; the third layer is light curing coating ensuring all other places except the channel are insulated, so as to improve the conductive stability of OECT. The length and width of channel are 1mm and 4mm. Clevios™ S V4 conductive printing ink, which is mainly consisted of semiconductor PEDOT:PSS is applied on the transistor as channel by screen-printing. The OECTs were then dried and heated in nitrogen to fix all components.

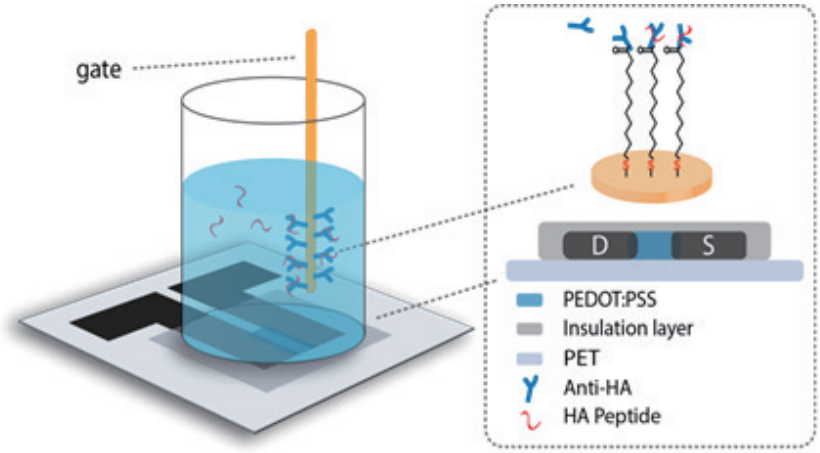

Fig.2. Schemes demonstrating the principle for influenza virus detection based on the OECT

Reader instrument and user interaction

To provide users with most convenience, we designed an integrated, automated and user-friendly reader instrument. The device is 6.07cm×3.18cm×2cm in dimensions, featured with a switch and a connector for power control and measurement management, respectively. The simple design of user apps allows users to handle measurement safely and easily, offering direct and rapid data acquisition. During testing, users are expected to follow a 2-step simple procedure: collect a drop of saliva onto the cartridge, insert the cartridge into the sensor and push the buttons on the app. Powered by USB cable, OECT detects the chemical signal and converts it into the current signal, which is collected with LMP91000 and processed by an in-house written program in ESP32. The final output is both displayed on the screen as concentrations and medical results. Meanwhile the result is updated to TruSense app on a mobile device through a Bluetooth connection. The TruSense app enables the real-time update of testing results from the device. if the case of temporal connection is in disability, the outputs can also be added into the app manually with ease.

TECHNOLOGICAL FEASIBILITY

Incubation of Crosslinking

At room temperature, the carboxyl group of 11-MUA can form the coordination binding with the electrode. Under the action of NHS and CDC, the carboxyl group becomes the active state which is easy to obtain electrons and form ester bond with the amino group on the antibody. NHS/EDC acts as a activator to promote ester bond formation. In this way the 11-MUA helps connects the antibody with gold electrode as a crosslinking agent.

Integration characterization on the electrode

For each of the functionalization step above, the impedance spectra of the gold electrode are given by using the electrochemical workstation. EIS was recorded at 200 mV AC from 100 kHz to 0.01Hz at 17 steps/decade. The resistance of gold electrode is gradually increased from bare electrode to the different reagents modified layers, which indicates successful attachment of reagent molecules. when the antigen and antibody bind, the EIS always shows a lower resistance value because the combination of the antigen and antibody can cause the originally exposed charged sites of the antibody molecule wrap, so bring a charge shielding effect, thus the resistance decreases. (fig 4)

OECT device has high stability and detecting ability

Like organic field-effect transistor (OFET), OECTs act like a switch, in which the gate voltage (input signal) controls the drain current (output signal). Chemical reactions that involve direct electron transfer with the electrode would change the gate voltage. Therefore, the drain current is indictive of gate voltage, which reflects the analyte concentration in solution.
Before the electrochemical measurement, the resistance between the source and drain was measured, which showed a stable outcome (basically at about 1.5 k), indicating the relatively high conductivity of the channel. Then the electrical characteristics of OECT were measured using AgCl electrode and Keysight semiconductor instrument. As the diagram shows, the gate of OECT demonstrates a good modulation effect on drain current. The transconductance peaked at the strongest modulation effect on the current when VG = 0.4V. Due to the small resistance of OECT, appropriate change on gate voltage could cause a large shift on the corresponding current, ensuring better sensitivity and lower detection limit.

Overall feasibility

The biosensor meets the need of real-time measurement of H1N1 virus antigen concentration in the artifi-cial saliva sample, with a high accuracy as well as a low detection limit of under 10-9 M within 5 min. Thus, the measurement could be completed within 4 minutes altogether. The estimated time required for the measurement and the corresponding accuracy is also supported by a series of previous researches. To summarize, the biosensor we have designed and made could be a qualified and promising POCT device.

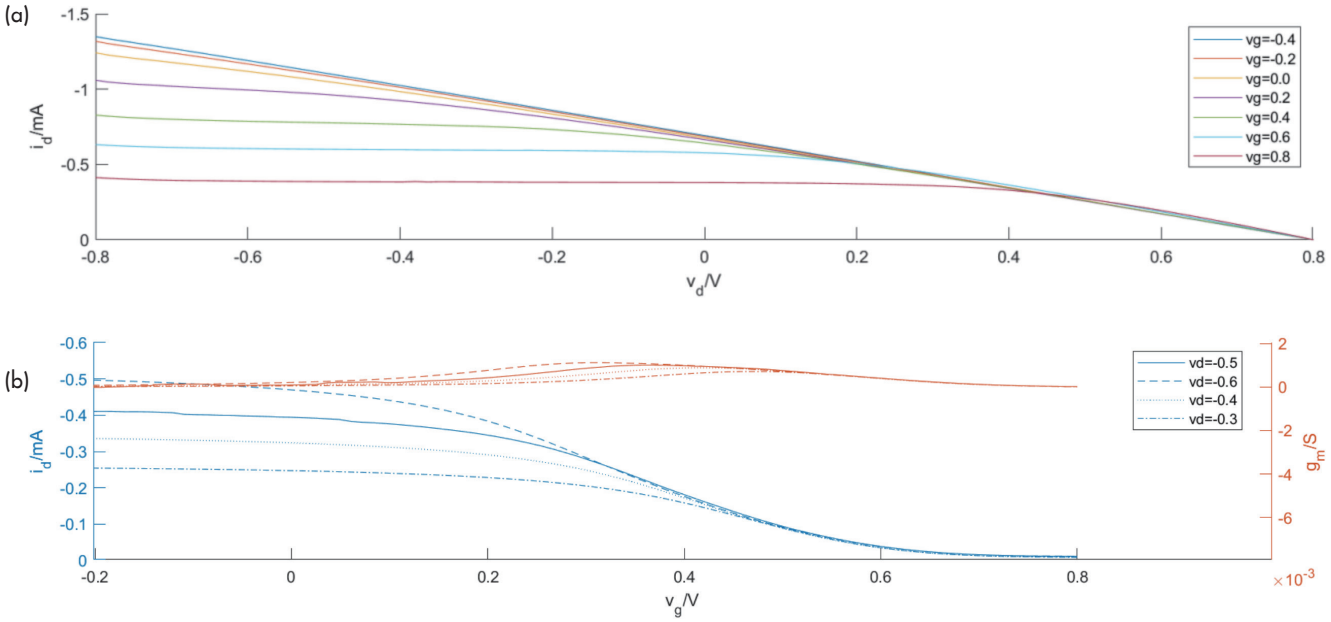

Fig.5. (a) the output characteristic curve of OECT. (b) the transfercharacteristic curve of OECT

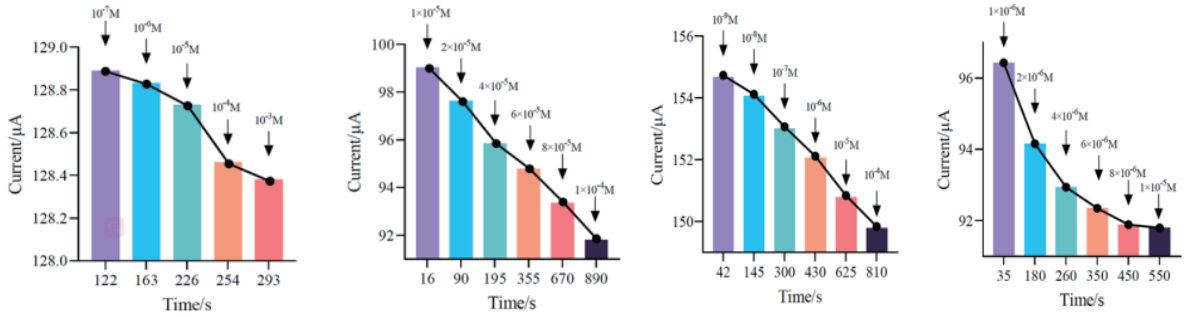

Fig.6. the commutative response of the drain current to different concentrations of antigen

ORIGINALITY

Written by the team

It's been an amazing year. We've recruited 15 players with different personalities and different talents. Most of our team are sophomores and juniors from engineering, biology, finance and other majors. We have three groups, namely principle group, instrument group and commercial potential group. We have clear division of labor and happy cooperation. We make plans together and achieve goals together. Finally, we designed the influenza virus sensor based on OECT. We are proud of its excellent performance and hope we can achieve good results in this year's competition. Unfortunately, due to the COVID-19 pandemic, we were unable to attend the competition in the Netherlands, but we are looking forward to meeting teams from different countries during innovation Day. Dear friends, see you soon!

Written by the supervisor

It has been a year of challenge and promise, with the COVID-19 pandemic making our sensor development even more difficult than usual. However, our team overcame various difficulties, carried out comprehensive and in-depth research in the early stage, and proposed influenza virus sensors based on OECT and QCM, and carried out experiments fully. To explore all possible designs, the team went through a large number of literature studies, thorough discussions and the experimental verification, the final OECT generated accurate test results. Our sensor can achieve the detection limit of less than 10-9 M, which is flexible and reusable, needs only to change different antibodies to the target viruses, thus has a great potential in the field of rapid detection of influenza virus. I am very proud of this year's hard work and I am confident that TruSense will continue to get better and better sensors in the future.

TRANSLATION POTENTIAL

Business model canvas

<table>
<tr>
<td rowspan="2">Key partners
• Raw material supplier
• Medical device manufacturing plant
• Medical representative
• Hospital & clinic
• Strategic partners</td>
<td>Key activities
• Research and development of bio-sensors for influenza detection
• develop a user-friendly APP
• build a rich and complete online database
• in-depth cooperation with partners
• Marketing and product operations</td>
<td rowspan="2">Value proposition
• Cheap test sensor with high efficiency and accuracy
• Online APP for communication between patients and doctors
• Adaptive components for other researches
• Online diagnosis</td>
<td>Custom relationship
• Provide high-quality influenza testing services
• Online APP user feedback
• Perfect after-sales service</td>
<td rowspan="2">Customer segments
• To C
susceptible population
Small residential community
• To B
laboratory physicians
R&D centers
medical devices companies</td>
</tr>
<tr>
<td>Key resources
• A diverse founding team
• experienced professional coaching team
• Strong partners</td>
<td>Channels
• SEO + sales website
• Government policy support
• Create interaction platform for customers</td>
</tr>
<tr>
<td colspan="3">Cost structure
• Cost of Good sold
• Research & Developing cost
• General & Administrative cost
• Sales & Marketing</td>
<td colspan="2">Revenue structure
• Fund-raising income
• Sales revenue of sensors
• Sales of side-line products
• Government financial support</td>
</tr>
</table>

Stakeholder desirability

Influenza virus is a long-standing and harmful enemy of human society. According to the documents of China's National Center for Disease Control and Prevention, tens of millions of people in China suffer from influenza on average every year, and the death toll is around 80,000. At present, influenza virus detection mainly relies on in vitro diagnostic instruments, which not only take a long time to detect with high laboratory costs, but also require professional technicians to operate. Most importantly, only qualitative or semi-quantitative virus detection can be performed. Therefore, individuals and small communities need easier and more affordable methods of testing themselves at home to reduce the risk of contracting the virus outside in the event of a pandemic. For the testing personnel in medical institutions, they are more looking forward to a less time-consuming, high accuracy testing method, so as to reduce some of the consultation process that may be caused by the contradiction between doctors and patients as much as possible.
In order to find a feasible method, our team developed a biosensor for the detection of influenza A (H1N1) virus, which requires only saliva samples, rather than the traditional throat and nose swabs and blood, greatly improving the comfortablity. At the same time, our products not only save time,but also give non-professionals the opportunity to achieve convenient virus detection. Our core technology also enables the detection process to reach great accuracy within 5 minutes, which is a leap forward compared with the traditional qualitative detection. The virus concentration can be transmitted to the mobile phone app data by Bluetooth, providing important information for doctors to diagnose.

Market Support

China has issued the National Influenza Prevention and Control Work Plan 2020 to support the development of new technologies for influenza virus detection. Since the SARS epidemic in 2003, the government has increased its investment in medical and health care. The proportion of government expenditure in the total health expenditure has risen rapidly from 17% in 2003 to 30.5% in 2011, and the proportion is still as high as 28.26% in 2018.
Since the outbreak of COVID-19 the public has raised their awareness of epidemic prevention, and has become more cooperative, providing a social driving force for influenza detection.
The huge gap of flu-related medical equipment and the susceptibility of human beings to influenza virus endow the global influenza testing market with a huge capacity and rigid demand. With the advantages of quick speed, precision, portability and user-friendliness, we will seize the huge residential community market and home user market as the entry point to build our own market competitive advantage.

China's Special Market Position

China is a country with a large population and dense distribution of residents. A small community can accommodate more than 1000 people and is operated by residents' participation in community autonomy. In 2019, China has more than 400,000 community service agencies, which will be the frontier defensing a flu outbreak, and will be also one of our potential users.
What's more, by the end of 2019, China had 1,007,545 medical and health institutions, according to our field investigation and face-to-face interviews, grassroots hospitals and medical institutions will face a huge demand for testing in case of influenza outbreak, and they are in urgent need of a more rapid and accurate esting method compared. At the same time, China's medical market is in pressing need of innotvative testing methods, especially with the current biosensor market gap, our products will open up a broad and new market in China.

Value Proposition

Based on the above analysis of the market and users, our products will provide a new testing method with low cost, simple testing process and accurate testing results for residents and communities. For hospitals and the society, timely communication and tracking and processing of testing data through online platforms can greatly optimize the doctor-patient and improve the efficiency of the medical system. For researchers, we provide a principle and method that can be applied to detect different viruses, which will make research more flexible and innovative in the field of biosensors.

Business Feasibility

To make our business feasible, there're three critical factors: powerful supports, appropriate marketing strategy and wise strategic planning.

Support

To meet the commercial development needs of the product, TruSense has assembled a multidisciplinary team. In addition to the external agents needed to complete agile development, the internal members and divisions of labor mainly include: biotechnology team responsible for sensor development and further production; Developers responsible for web site development and applications; A management team responsible for liaising with potential buyers and key partners.
For sensor development, we have received assistance from engineering Biology Center of Haining International Campus and School of Biological Sciences of Zhejiang University. We have relatively advanced laboratory equipment and talent groups. The production and development of hardware and consumables will be completed by our

partner, Zhejiang Disai Biotechnology Co., LTD., which has rich experience in the medical device market. Clinical trials and internal testing of the product will be completed with Shaw Hospital.
In terms of business development, with the support of local government policies and university resources, TruSense will be set up and started in Zhejiang University business incubator Meta-space from 2021 to 2023. Today, TruSense has received financial support of $3000 from the Economic Zone of Zhejiang University Alumni Association Headquarters and is able to find potential business partners, including supplier partners, electrochemical application enterprises and e-commerce sales channel companies, etc. Relevant cooperation is under negotiation.

Marketing Strategies

We plan to monetize in three areas, including sensor units, chip consumables and subscription services. Through in-depth communication with authoritative experts on influenza testing (Appendix X social practice), we decided to start from c-end users in the early stage, and target groups include individual patients and small community clinics. In the future, we will gradually provide enterprise-level and government-level adaptation products and services.
Retail mainly concerns three channels: online shopping platform, offline pharmacies and medical equipment store, to try on the retailing method that specially designed for the product including online and offline combination, perfectize logistics distribution mode of retail. The early stage marketing includes event marketing, word-of-mouth marketing, do as to introduce people or events which have social influence and news value that could draw public attention and build brand reputation. Centralized procurement terminals are mainly for medical institutions and government projects, usually through bidding and trade fairs.

Strategic Planning

Our focus will be on the whole medical and health field, committed to building a comprehensive, multi-center, high-level medical assistance sharing platform. The challenges lie in expanding the channel and accumulating users, but TruSense has always focused on the core competency of its products, maintaining close communication with doctors and patients, and iteratively optimizing the primary product model. Sensor multiplexing is realized on the product, and multiple influenza viruses can be detected accurately by replacing chip consumables. The platform realizes the retention of digital archives and reduces the obstacles of doctor-patient communication through information sharing; In business, online and offline resource integration is realized, and breakthrough is made point by point by focusing on the overall process of the industrial chain.

Financial Viability

In terms of revenue, we expect to achieve a revenue of 4.521 million yuan in the first year after the equipment is on the market, with a steady growth rate of more than 100% annually. In the fourth year, we expect to achieve a revenue of more than 63.75 million yuan, with a profit margin of more than 17% and steady growth.
In order to realize the continuous expansion and product's widespread impact, we expect the ongoing fixed assets investment, including inspection and testing equipment, research and development equipment and equipment factories, the accumulative total investment reaches more than 60 million in the fourth year, the investment of fixed assets and healthy cash balance to make the company will have strong financial ability to resist risks. For the financial accounting, see the appedix.

TEAM AND SUPPORT

Contributions of the Team Members

Supervisor & coach & captains

Prof. Liquan Huang is the team supervisor. He is very responsible and have offered us valuable guidance.

Tianyu Li is the team coach, who offered major experimental supports, especially the skills of construction of OECT. She also provided us with insightful suggestions to build a better biosensing system and learn about the physical basis of biosensing system.

Nan Li is the captain of TruSense2021. She managed the teamwork, led the discussion and responsible for communication with the SensUs Organization. She has also contributed to the construction of OECT and the detection of the antigen.

Yusen Wang is the captain of TruSense2021. He is responsible for the direction of principle group and always come up with explanation for the problems of chemical principle. He has also contributed to the construction and coding of OECT wafer.

Translation group

Xin Xu is in charge of the translation group and she also manged the team finance.

Ziyi Liu is excelled in making business plan.

Liyuan Tian is responsible for the translation of our text and calibration of our pronunciation.

Tianyu Shi is responsible for the design of PPT and beautification of biosensing model.

Principle group

Zhijian Yan takes good command of biochemistry and uses his professional knowledge to facilitate the lab work. He haves creations in modifying devise, such as the proposition of DNA tetrahedron.

Xiang Lou is good at welding and experimental skills. He succeeded in making wafer for the OECT with Yusen Wang.

Weijia Chen is meticulous about the lab work and the project application. He also discovered and solved p problems in experimental plan.

Beini Chen spent much time and energy experimentalizing in the lab during the whole project. She gave suggestions to adjust the length of DNA chain of DNA tetrahedron, which remarkably improved the efficiency of self-assemble.

Jianhui Gu worked out a plan B using paper chromatography and mainly participated in the experiments of OECT. He also analyzed the data of EIS and drew charts.

Instrument group

Tingyu Xie coded the software and facilitate the OECT testing work.

Chenye Shen explored the QCM method for virus detection and actively participated in OECT testing

Tianyi Chen designed and crafted the circuit and its shell, also contributed in QCM method.

Yibo Shao developed and optimized the android application. Designed the UI as well.

Sponsors


SensUs


ZHEJIANG UNIVERSITY
1897


浙江大學
ZHEJIANG UNIVERSITY


COLLEGE OF LIFE SCIENCES


ZUM
LLU
1994


1947
THE FIRST AFFILIATED HOSPITAL, ZHEJIANG UNIVERSITY


DE ELL
INNOBRIDGE


SIEMENS
Healthineers


The
Technology
Partnership


DEMCON

FINAL REMARKS

In the year of 2021, TruSense team perfected the OECT technology presented in the previous year. We worked together to vertically integrate the instrument/hardware part, the software part and the molecular recognition part. TruSense biosensor used the open-sourced ESP32 hardware platform and Arduino programming tools, which are cheap and easy to access. In this year, the OECT manufacturing process was simplified and performed well by screen-printing. All these improvements made it possible for primary technicians, like undergraduate team members, to quantitively produce reliable devices. The high reproducibility and operability greatly promoted the translation potential of our biosensor. Cost of our MVP(Minimal Viable Product) can be reduced to under €20 and under €1 per test. Thank Dr. Bo Liang for his instruction in OECT producing technique. He is a serious but kind teacher for us. Prof. Dr. Liquan Huang also helped us a lot in knowledge and in professional resources.

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APPENDIX

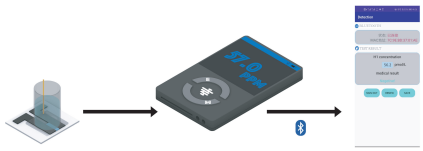


Fig.3. User interface

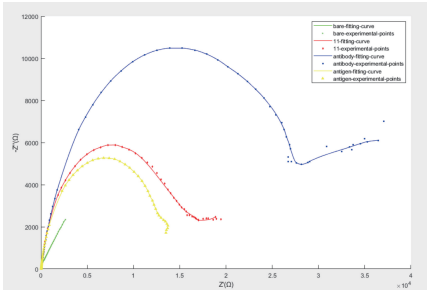
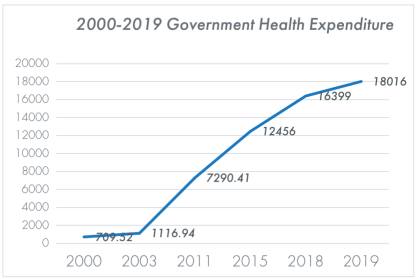
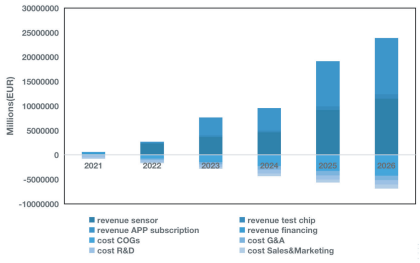


Fig.4. the EIS of Solid gold electrode modified by DNA tetrahedron



Unit: 100 million



		2021	2022	2023	2024	2025	2026
revenue	sensor		2300000	3680000	4600000	9200000	11500000
	test chip		184000	294400	368000	736000	883200
	APP subscription		229770	3676320	4595400	9190800	11488500
	financing	600000					
cost	COGs		714000	1480000	2280000	3280800	4207600
	G&A	108888	299000	420000	720080	865000	920080
	R&D	380000	420000	548000	780020	843000	900340
	Sales & Marketing	150000	250000	350000	540080	638000	860400
Net profit		-38888	1030770	4852720	5243220	13500000	16983280

5-year cash flow

Cash flow Statement

	Historical	Fiscal Years Ending December 31,			
(CNY in millions)	12/31/21	12/31/22	12/31/23	12/31/24	12/31/25
Cash flow from operations					
Net income	45.9	452.1	1,201.2	2,654.6	6,375.4
Depreciation & Amortization	10.5	12.4	15.2	19.2	25.3
Change on working capital	-	(226.2)	(258.7)	(65.2)	(1,083.1)
Change on loan receivable	-	-	-	-	-
Change on DTA	-	-	-	-	-
Change on deferred charges	-	-	-	-	-
Change on Long term assets	-	-	-	-	-
Change on other non current liabilities	-	-	-	-	-
Cash flow from operations	**56.4**	**238.3**	**957.7**	**2,608.6**	**5,317.7**
Cash flow from Investment					
Capex		(37.5)	(56.9)	(79.4)	(123.1)
Cash flow from Investment		**(37.5)**	**(56.9)**	**(79.4)**	**(123.1)**
Cash flow from Financing					
Change on common stock	-	-	-	-	-
Change on treasury stock	-	-	-	-	-
Change on comprehensive income	-	-	-	-	-
Net borrowings	-	-	-	-	-
Cash Flow from financing		-	-	-	-
Cash changes	**56.4**	**200.8**	**900.9**	**2,529.2**	**5,194.6**
Beginning cash balance	200.0	256.4	457.2	1,358.1	3,887.2
Ending cash balance	**256.4**	**457.21**	**1,358.1**	**3,887.2**	**9,081.8**

Debt Schedule

Short term debt		–	–	–			
Long term debt		–	–	–			
New PP&E through debt				0%	0%	0%	0%
New long term debt				–	–	–	–
Debt							
Begnig Balance				–	–	–	–
Debt repayment							
Debt borrowed				–	–	–	–
Ending debt balance				–	–	–	–
Interest expense	5%			–	–	–	–
Cash							
Beginning cash balance			200	256.4	457.2	1358.1	3887.2	16879
Interest income	2%			3.0	3.8	6.9	20.4	58.3
Net interest expense				3.00	3.85	6.86	20.37	58.31

PP&E

		Historical	Fiscal Years Ending December 31,			
(CNY in millions)		12/31/21	12/31/22	12/31/23	12/31/24	12/31/25
PP&E						
Gross PP&E		50.0	87.5	144.4	223.8	346.9
Accumulated Depreciation		(2.5)	(6.9)	(14.1)	(25.3)	(42.6)
Net Property, Plant & Equipment		**47.5**	**80.6**	**130.3**	**198.5**	**304.2**
Existing PP&E			50.0			
Depreciation year	20.0					
Depreciation			(2.5)	(2.5)	(2.5)	(2.5)
New PP&E			37.5	56.9	79.4	123.1
Depreciation year	20.0					
Depreciation	12/31/22		(1.9)	(1.9)	(1.9)	(1.9)
	12/31/23			(2.8)	(2.8)	(2.8)
	12/31/24				(4.0)	(4.0)
	12/31/25					(6.2)
Total depreciation			**(4.38)**	**(7.22)**	**(11.19)**	**(17.34)**
Key Ratios						
Gross PP&E growth			75%	66%	55%	55%
Other intangible						
Beginning balance		500.0	492.0	484.0	476.0	468.0
Amortization		(8.0)	(8.0)	(8.0)	(8.0)	(8.0)
Ending balance		492.0	484.0	476.0	468.0	460.0
Depreciation and Amortization		(10.5)	(12.4)	(15.2)	(19.2)	(25.3)

Balance Sheet

	Fiscal Years Ending December 31,				
(CNY in millions)	12/31/21	12/31/22	12/31/23	12/31/24	12/31/25
Assets					
Cash And Equivalents	256.4	457.2	1,358.1	3,887.2	9,081.8
Short Term Investments	-	-	-	-	-
Total Cash & ST Investments	**256.4**	**457.2**	**1,358.1**	**3,887.2**	**9,081.8**
Accounts Receivable	15.8	61.3	178.9	340.9	826.4
Other Receivables	1.2	7.6	17.8	33.8	88.6
Total Receivables	**17.0**	**68.9**	**196.7**	**374.7**	**915.0**
Inventory	100.0	539.4	1,306.5	2,214.5	5,601.0
Other Current Assets	10.0	20.0	20.0	20.0	20.0
Total Current Assets	**383.4**	**1,085.5**	**2,881.3**	**6,496.4**	**15,617.8**
Gross PP&E	50.0	87.5	144.4	223.8	346.9
Accumulated Depreciation	(2.5)	(6.9)	(14.1)	(25.3)	(42.6)
Net Property, Plant & Equipment	**47.5**	**80.6**	**130.3**	**198.5**	**304.2**
Long-term Investments	-	-	-	-	-
Other Intangibles	492.0	484.0	476.0	468.0	460.0
Loans Receivable Long-Term	-	-	-	-	-
Deferred Tax Assets, LT	-	-	-	-	-
Deferred Charges, LT	-	-	-	-	-
Other Long-Term Assets	-	-	-	-	-
Non Current Asset	**539.5**	**564.6**	**606.3**	**666.5**	**764.2**
Total Asset	**922.9**	**1,650.1**	**3,487.5**	**7,162.9**	**16,382.0**
Liabilities					
Accounts Payable	12.5	53.9	165.4	256.9	640.4
Accrued Exp.	30.4	74.4	176.8	349.7	800.5
Short-term Borrowings	-	-	-	-	-
Curr. Income Taxes Payable	8.7	98.0	272.3	560.0	1,390.5
Unearned Revenue, Current	60.8	161.2	409.4	878.0	2,056.9
Other Current Liabilities	-	-	-	-	-
Total Current Liabilities	**112.4**	**387.6**	**1,023.8**	**2,044.6**	**4,888.2**
Other Non-Current Liabilities	-	-	-	-	-
Long term debt	-	-	-	-	-
Total Liabilities	**112.4**	**387.6**	**1,023.8**	**2,044.6**	**4,888.2**
Common Stock	464.6	464.6	464.6	464.6	464.6
Additional Paid In Capital	300.0	300.0	300.0	300.0	300.0
Retained Earnings	45.9	498.0	1,699.2	4,353.8	10,729.2
Treasury Stock	-	-	-	-	-
Comprehensive Inc. and Other					
Total Common Equity	**810.5**	**1,262.6**	**2,463.7**	**5,118.3**	**11,493.8**
Minority Interest	-	-	-	-	-
Total Equity	**810.5**	**1,262.6**	**2,463.7**	**5,118.3**	**11,493.8**
Total liabilities + Shareholder's equity	922.9	1,650.1	3,487.5	7,162.9	16,382.0
checker	TRUE	TRUE	TRUE	TRUE	TRUE

Key Ratios

Receivable turnover	20.4	23.4	26.3	23.4	24.4
Inventory turnover	324.4	600.0	632.0	518.8	583.6
Account payable turnover	40.6	60.0	80.0	60.2	66.7
Accrued expense turnover	77.5	82.8	85.5	81.9	83.4

Key Ratios

Receivable turnover	20.4	23.4	26.3	23.4	24.4
Inventory turnover	324.4	600.0	632.0	518.8	583.6
Account payable turnover	40.6	60.0	80.0	60.2	66.7
Accrued expense turnover	77.5	82.8	85.5	81.9	83.4
Account receivable/total receivable	93%	89%	91%	91%	90%
Other receivable/total receivable	7%	11%	9%	9%	10%
Current tax payable/tax paid	57%	65%	68%	63%	65%
Unearned revenue/ revenue	15%	15%	15%	15%	15%

Working Capital Calculation

Total Receivables	17.0	68.9	196.7	374.7	915.0
Inventory	100.0	539.4	1,306.5	2,214.5	5,601.0
Other Current Assets	10.0	20.0	20.0	20.0	20.0
Non cash current asset	**127.0**	**628.3**	**1,523.2**	**2,609.2**	**6,536.0**
Accounts Payable	12.5	53.9	165.4	256.9	640.4
Accrued Exp.	30.4	74.4	176.8	349.7	800.5
Curr. Income Taxes Payable	8.7	98.0	272.3	560.0	1,390.5
Unearned Revenue, Current	60.8	161.2	409.4	878.0	2,056.9
Other Current Liabilities	0.0	0.0	0.0	0.0	0.0
Non-debt current liabilities	**112.4**	**387.6**	**1,023.8**	**2,044.6**	**4,888.2**
Net working capital	**14.6**	**240.7**	**499.4**	**564.6**	**1,647.7**

Income Statement						
		Fiscal Years Ending December 31,				
(CNY in millions)		2021/12/31	2022/12/31	2023/12/31	2024/12/31	2025/12/31
Revenue		300.0	1,064.7	2,696.9	5,783.6	13,612.2
Other Revenue		4.2	10.1	32.4	69.5	100.2
Total revenue		**304.2**	**1,074.8**	**2,729.3**	**5,853.1**	**13,712.4**
COGS		(112.5)	(328.1)	(754.6)	(1,558.0)	(3,503.0)
Gross profit		191.7	979.6	2,470.0	5,326.3	12,505.7
SG&A		(85.5)	(249.4)	(573.5)	(1,184.0)	(2,662.3)
Other expenses		(45.0)	(131.3)	(301.8)	(623.2)	(1,401.2)
EBIT		**61.2**	**599.0**	**1,594.7**	**3,519.1**	**8,442.3**
Interest income		-	3.8	6.9	20.4	58.3
Financial cost		-	-	-	-	-
Other Non-Operating Inc. (Exp.)		-	-	-	-	-
Impairment of Goodwill		-	-	-	-	-
Gain (Loss) On Sale Of Assets		-	-	-	-	-
Asset Writedown		-	-	-	-	-
Other Unusual Items						
Profit before tax		**61.2**	**602.8**	**1,601.6**	**3,539.4**	**8,500.6**
tax		(15.3)	(150.7)	(400.4)	(884.9)	(2,125.1)
Net Income from cont. operations		45.9	452.1	1,201.2	2,654.6	6,375.4
Earnings of Discontinued Ops.		-	-	-	-	-
Extraord. Item & Account. Change		-	-	-	-	-
Net Income to Company		45.9	452.1	1,201.2	2,654.6	6,375.4
Minority Int. in Earnings		-	-	-	-	-
Net Income		**45.9**	**452.1**	**1,201.2**	**2,654.6**	**6,375.4**
EBIT		61.2	599.0	1,594.7	3,519.1	8,442.3
Depreciation & Amortization		10.5	12.4	15.2	19.2	25.3
EBITDA		**71.7**	**611.3**	**1,609.9**	**3,538.3**	**8,467.6**
Key Ratios						
Total revenue growth		#REF!	26%	21%	19%	17%
Revenue/total revenue		99%	99%	99%	99%	99%
COGS growth		#REF!	192%	130%	106%	125%
Gross Margin		63%	91%	91%	91%	91%
SG&A as % of COGS		76%	76%	76%	76%	76%
Other expense as % of COGS		40%	40%	40%	40%	40%
EBIT Margin		20%	56%	58%	60%	62%
Net Income Margin		15%	42%	45%	46%	47%
Effective tax rate		(25%)	(25%)	(25%)	(25%)	(25%)

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