Matrix Timing based Encryption system

We plan on creating an encryption system that swaps characters based on the time that the message was encrypted. Each shift originates from the center and goes outward in the direction that the clock hand would go. The first shift is based on the hours:

10.11	12	1,2
9		3
7,8	6	4,5

The second shift is based on the minutes:

50 to 55	56 to 4	5 to 10
41 to 49		11 to 19
35 to 40	26 to 34	20 to 25

For example if I were to encrypt the word “Jukeboxes” is sent at 9:07am.

J	u	k
e	b	o
x	e	s

Since the first number is 9 the character in the center would switch with the character to the left.

J	u	k
b	e	o
x	e	s

After the Hour shift is done the next shift will be the minute hand which is at 7. So the center character will shift with the top right character.

J	u	e
b	k	o
x	e	s

The encrypted string would be “Juebkoxes”. We could even shift based on the second that the message was encrypted at which would give three shifts.

Depending on the size of the message we could use 9 3x3 matrixes and shift those as well.

For example if i wanted to encrypt “This is a test message. CyberStorm will be so hard this year. They aren’t ready.” at 12:37 pm. The spaces have been replaced by underscores just so they can be seen.

T	h	i	n	_	e	_	m	e
s	_	i	x	a	m	s	s	a
s	_	a	p	l	e	g	e	.
C	y	b	m	_	w	_	s	o
e	r	s	i	l	l	_	h	a
t	o	r	_	b	e	r	d	_
t	h	i	.	T	h	n	‘	t
s	_	y	e	y	_	r	e	a
e	a	r	a	r	e	d	y	.

First we would do the hour shift for each 3x3 matrix:

T	_	i	n	a	e	_	s	e
s	h	i	x	_	m	s	m	a
s	_	a	p	l	e	g	e	.
C	r	b	m	l	w	_	h	o
e	y	s	i	_	l	_	s	a
t	o	r	_	b	e	r	d	_
t	_	i	.	y	h	n	e	t
s	h	y	e	T	_	r	‘	a
e	a	r	a	r	e	d	y	.

Next we will perform the hour shift for the entire 3x3 matrix:

T	_	i	m	l	w	_	s	e
s	h	i	i	_	l	s	m	a
s	_	a	_	b	e	g	e	.
C	r	b	n	a	e	_	h	o
e	y	s	x	_	m	_	s	a
t	o	r	p	l	e	r	d	_
t	_	l	.	y	h	n	e	t
s	h	y	e	T	_	r	'	a
e	a	r	a	r	e	d	y	.

After that we perform the minute shift for each individual 3x3 matrix:

T	_	i	m	l	w	_	s	e
s	s	i	i	_	l	s	g	a
h	_	a	_	b	e	m	e	.
C	r	b	n	a	e	_	h	o
e	t	s	x	p	m	_	r	a
y	o	r	_	l	e	s	d	_
t	_	l	.	y	h	n	e	t
s	e	y	e	a	_	r	d	a
h	a	r	T	r	e	'	y	.

Then we perform the minute shift for the entire 3x3 matrix

T	_	i	m	l	w	_	s	e
s	s	i	i	_	l	s	g	a
h	_	a	_	b	e	m	e	.
C	r	b	t	_	l	_	h	o
e	t	s	s	e	y	_	r	a
y	o	r	h	a	f	s	d	_
n	a	e	.	y	h	n	e	t
x	p	m	e	a	_	r	d	a
_	l	e	T	r	e	‘	y	.

The resulting message is
“T_issih_amlwi_l_be_sesgame.Crbetsyort_iseyhar_ho_rasd_naexpm_le.yhea_Trenetrda’y.”
Compared to the original:
“This_is_a_test_message.CyberStorm_will_be_so_hard_this_year.They_aren’t_ready.”

We wanted to make a challenge that could be solved in a reasonable amount of time but still be challenging.
We are not 100% set on this method but it will extremely like this. The challenge will be deployed in a scenario. The Cyberstorm participant will be given the encrypted message that was found by one of the network engineers and they need it decrypted. They will also be given the time that the message was given. We may give them a single 3x3 matrix as a round 1 and upon solving that give them the full 3x3 made of nine 3x3 matrixes.